

# **Report of the Joint Committee on Agriculture**

December 2021

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CHIEF CLERK

December 31, 2021

Rob Vescovo, Speaker  
House of Representatives  
State Capitol Building  
Jefferson City, MO 65101

Dave Schatz, President Pro Tempore  
Missouri Senate  
State Capitol Building  
Jefferson City, MO 65101

Dear Mister Speaker and Mister President Pro Tempore:

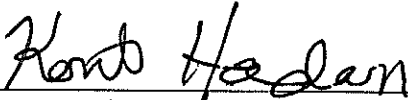
The Joint Committee on Agriculture has met, taken testimony, deliberated and concluded its review of the four areas expressly laid out in Senate Bill 391, which passed in 2019. The below listed committee members are pleased to submit the attached report:



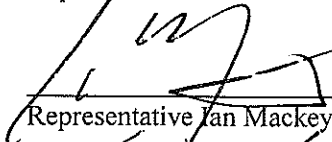
Co Chairman Representative Mike Haffner



Representative Rick Francis



Representative Kent Haden



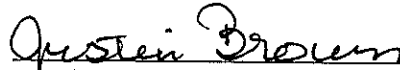
Representative Ian Mackey



Representative Wes Rogers



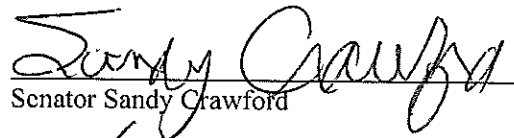
Chris Chinn, Department of Agriculture



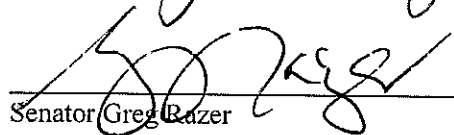
Co Chairman Senator Justin Brown



Senator Mike Bernskoetter



Senator Sandy Crawford



Senator Greg Razer

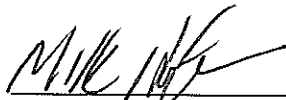


Senator Doug Beck



Dru Buntin, Department of Natural Resources

Sincerely,



Representative Mike Haffner  
Committee Co-Chair



Senator Justin Brown  
Committee Co-Chair

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## **Introduction**

In the 2019 session, the General Assembly passed Senate Bill 391, sponsored by Senator Mike Bernskoetter, which modified the laws relating to agricultural operations. The bill also established the "Joint Committee on Agriculture." The joint committee met and issued a report in 2020 and has continued its efforts in 2021.

The joint committee is tasked with studying the economic impact of the agricultural industry in the state, the industry's ongoing efforts to improve environmental stewardship while also improving the economic sustainability of agriculture, ways to incentivize members of the industry to adopt best practices to address Missouri's carbon footprint, and the public's views on agricultural issues in general. As required by the legislation, the joint committee must issue a report by January 15 of each year. In 2021, the joint committee continued to build on the work it had completed in the fall of 2020. The joint committee held two public hearings on July 6 and September 8, 2021, in Jefferson City.

## **Summary of Public Testimony**

### **I. July 6, 2021 Hearing**

At the July 6, 2021, hearing in Jefferson City, the joint committee heard testimony from representatives of different sectors of the agriculture industry. Most of the testimony spoke to the challenges the agriculture industry faces.

Don Nikodim with the Missouri Pork Producers' Association spoke of the changes in hog farm operations in recent history, including the increase in environmentally controlled hog barns, the use of manure as a natural fertilizer for row crop operations, and strict nutrition plans to ensure the production of healthy animals. He also discussed the key issues facing the association's producers including the impact of African Swine Fever on swine markets, trade restrictions, production costs, packer capacity, and labor shortages. He noted that Missouri is sixth in pork production nationwide and has approximately 2700 operations throughout the state. Handouts from the presentation can be found in Appendix B.

Dr. Scott Brown, from the University of Missouri's Food and Agricultural Policy Research Institute, discussed the 2021 and beyond outlook for the agricultural industry including the factors that affect the returns. He also discussed the effects of COVID-19 on the different sectors of the agriculture market, which were not equally distributed between the sectors, and how the sectors have rebounded in 2021. A copy of his presentation can be found in Appendix C.

Tony Clayton, with Clayton Agri-Marketing in Jefferson City, gave testimony on how regulatory hurdles have affected the livestock export industry. Clayton discussed the impact of certain diseases on the export markets for livestock and the steps, as an exporter, he must take to move animals throughout the country and the world. One problem he specifically spoke to was the need to train large animal veterinarians on requirements for exporting animals. He also spoke of the benefits of the federal animal identification program when exporting animals to foreign nations.

Garrett Hawkins, the President of the Missouri Farm Bureau, introduced himself to the joint committee and spoke on the key issues facing the agriculture sector today, including the federal and state regulatory environments, climate change concerns, cattle market transparency, and property rights. The change in federal administration has also changed the environmental regulatory direction, especially as it relates to the definition of navigable waters, which will affect farmers and ranchers of the state. Missouri was at the forefront of the discussions previously and needs to be once again. The administration is also looking at regulations related to climate change. Farmers and ranchers need to be involved in the policy development and promote the projects that have already been in place that help offset climate change.

Hawkins also spoke of the need for market transparency in the cattle markets. The difference between the price farmers are receiving for fed cattle and the boxed beef prices should be investigated. There have been several bills introduced at the federal level to look at this differential and requires additional transparency in the markets.

Finally, Hawkins spoke of concerns Missouri Farm Bureau has regarding property rights in Missouri. He expressed concerns about the Grain Belt Express threatening condemnation to move its project forward. He also mentioned the Rock Island Railroad corridor being used as a recreation trail and the new state park in Oregon County, which he said local residents and businesses are most impacted by these projects. He also commended the General Assembly on

the passage of Senate Bill 391 in 2019 and House Bill 270 in 2021 to protect landowners and livestock operations from additional regulatory burdens from local county health ordinances. Missouri Farm Bureau believes that the Department of Natural Resources is the proper regulatory authority for these operations.

Mike Deering with the Missouri Cattlemens Association discussed the impact of recent legislation on the stability of regulations for livestock owners. Senate Bill 391 and House Bill 270 have helped increase consistency by removing county-by-county ordinances across the state and placing the authority for regulation on livestock industry at the state level. Deering also continued to express concerns regarding market transparency and price discovery in cattle markets. The Cattlemens Association would like to see meaningful price discovery in cattle markets and has worked with Congresswoman Hartzler to draft federal legislation to require changes in the cattle markets.

Scott Swain with the Missouri Soybean Association discussed several issues that are important to the association including the promotion of Missouri biodiesel fuels, growing livestock production, transportation infrastructure, and farm productivity. Swain introduced Darrick Steen and Clayton Light, with the Missouri Soybean Association and the Missouri Corn Growers Association. Steen said that the efforts of farmers over the past 30 years have resulted in the reduction of 2.8 million tons of carbon dioxide released to the atmosphere.

Steen and Light also presented information on a conservation program the associations are working on implementing related to an ecosystem and carbon credit marketplace. Farmers invest in projects on their farms, which produce positive environmental outcomes that they can monetize by working with other organizations or corporations. Sixty-one producers are actively involved in the pilot program. A copy of Steen and Light's presentation can be found in Appendix D.

Dale Ludwig, Midwest Hemp Association, spoke about the hemp program in Missouri. One of the regulatory hurdles facing the industry is the permit cost for entering the industry. Several neighboring states have lower fees to grow hemp than the fees in Missouri. Ludwig went on to discuss the three types of hemp production and the challenges some hemp farmers have experienced. Lincoln University in Jefferson City has become a national leader on hemp research and is looking into solutions to some of the challenges.

Janie Dunning with Missouri Farm Bureau presented testimony regarding broadband access across the state. Dunning stated that at least 29 percent of farms in the United States do not have access to broadband internet. Broadband access is necessary for many aspects of agriculture including precision agriculture, marketing, and research. However, it is very costly to bring broadband infrastructure to many farms across the state. Costs to deploy broadband can range greatly depending on technology and terrain. Information presented by Dunning can be found in Appendix E.

Finally, Darrick Steen spoke on behalf of Bradley Shad for Missouri Corn Growers Association to voice the association's priorities. Those priorities include the MASBDA tax credits that are set to expire at the end of the year and a strong transportation system to move products to market.

## **II. September 8, 2021 Hearing**

At the September 8, 2021, hearing in Jefferson City, the committee heard presentations on legislative priorities from stakeholders. Below is a list of legislative priorities presented to the committee.

### **Wood Tax Credit Renewal**

Shannon Cooper with the Missouri Forest Products Association presented a proposal to renew the Wood Energy Tax Credit Program. The program was initially created in 1997 to provide incentives for sawmills to find beneficial uses for sawdust piles. The program provided \$5 per ton for the transportation of wood waste and helped make Missouri the leader in charcoal production. The program sunset in June of 2020.

### **MASBDA Tax Credit and Sunset Extension**

Emily LeRoy with the Department of Agriculture presented the Missouri Agricultural Small Business Development Authority (MASBDA) tax credit and sunset extension proposal. Three of MASBDA's current tax credit programs expire in 2021. These programs include the New Generation Cooperative Incentive and Agricultural Product Utilization Contributor Tax Credits, the Meat Processing Facility Investment Tax Credit.

BJ Tanksley with Missouri Farm Bureau, Scott Swain with Missouri Soybean Association, and Jason Zamkus with the Missouri Corn Growers Association spoke in support of the renewal of the tax credit programs. Information on the tax credit programs can be found in Appendix F.

### **Eminent Domain and Grain Belt Express**

Co-Chairman Mike Haffner spoke about the eminent domain proposals that he filed in the 2021 session and how this proposal changed throughout the legislative process. Grain Belt Express has proposed a transmission line across Missouri to transmit wind energy to the East Coast. It is expected that no more than six percent of the energy will be used in Missouri. The proposal would prohibit projects such as Grain Belt from using the power of eminent domain to build the transmission lines and changes the certificate of necessity requirements for certain projects. Tanksley testified in support of this proposal and the concerns Missouri Farm Bureau has about the use of eminent domain for future projects as well as the Grain Belt Express.

### **Biodiesel Incentive**

Scott Swain with the Missouri Soybean Association presented information on a proposal to issue a tax credit to retail dealers of biodiesel in the state. The proposal would promote the use of Missouri soybean based Biodiesel throughout the state. The five to 10 cent per gallon, depending on the blend, tax credit would be capped at \$20 million.

### **Ethanol Incentive**

Jason Zamkus with the Missouri Corn Growers Association presented a proposal previously filed aimed at increasing access to renewable fuels in the state. The proposal created a five

cent per gallon tax credit for ethanol retailers. The program was capped at \$4 million and had a six year sunset.

Steve Murphy with POET Bioprocessing and the Missouri Renewable Fuels Association spoke in favor of the tax credit. Bioethanol producers purchase more than 22 percent of the state's corn crop and supports farm families. This proposal would support family farms, create jobs, and lower fuel costs.

### **Rural Broadband**

Janie Dunning with Missouri Farm Bureau spoke about priorities to move broadband forward in Missouri. One priority is providing adequate support to the state's Broadband Development Office within the Department of Economic Development. Also, the programs offered must include accountability provisions to ensure that recipients of state funds provide the services as awarded. Dunning stated that the state and federal funds designated to expand broadband are the most financial support ever awarded for these types of projects.

### **Anhydrous Ammonia**

Senator Bernskoetter spoke regarding a proposal to eliminate duplicative oversight of anhydrous ammonia. Currently, both departments of Agriculture and Natural Resources regulate anhydrous ammonia. The proposed legislation would remove oversight by the Department of Agriculture and bring Missouri in compliance with EPA regulations.

### **Missouri State Fair Land Acquisition**

Representative Brad Pollitt spoke about an opportunity for the Missouri State Fair to purchase 400 acres of land surrounding the fairgrounds. In recent years, the fair added 135 campground hookups, which reduced the amount of parking for daily parking. The owners of the adjoining property are willing to sell the property to the State Fair and State Fair Community College. The addition of this property would make the fairgrounds a viable venue for national events.

### **Right To Repair**

Representative Barry Hovis spoke about a proposal to allow owners of products purchased or used in Missouri to have the right to access the same diagnostic and repair information that manufacturers supply to independent repair facilities and authorized repair providers. The legislation would protect proprietary information while allowing farmers to repair their own equipment.

### **Family Farms Act**

Representative Greg Sharpe spoke about a proposal to modify the Family Farms Act to better reflect family farms across the state in order to be able to provide financial support to Missouri farmers. It would increase the gross sales allowed to qualify and the maximum amounts of the loans. The proposal would also remove the provisions that would only allow one loan per family and for one type of livestock.

LeRoy with the Department of Agriculture spoke in support of the proposal.

### **Land Surveys**

Co-Chairman Haffner spoke about a proposal to update the land survey statutes. Rep. Don Mayhew filed a bill to codify current land surveying standards. LeRoy with the Department of Agriculture spoke in support of the proposal.

In addition to the legislative proposals, Brian Smith with the Rural Crisis Center testified regarding the Center's agricultural priorities. The Center would like the General Assembly to ban foreign corporate ownership of agricultural land. This ban would help protect both food and national security in the United States. Also, the Center would like to see a strengthening of the Department of Natural Resources' regulations for concentrated animal feeding operations to protect neighboring property owners and communities and restoration of the Clean Water Commission to the makeup prior to legislative changes in 2017. Finally, the center would like to see a concurrent resolution from the General Assembly asking the federal government to institute country of origin labeling for meat products.

Don Nikodim with the Missouri Pork Producers Association spoke about the contract farming system used the pork industry. The Producers Association supports investment in the industry and the rural communities in Missouri. The current corporations that own corporate farms, packing facilities, and contract with local farms provide investment into the rural communities of Missouri.

## **Appendix A: Hearings**

### **I. July 6, 2021, Hearing**

- Location: Jefferson City, Missouri
- Witnesses:
  - i. Don Nikodim, Missouri Pork Producers Association
  - ii. Dr. Scott Brown, University of Missouri
  - iii. Tony Clayton, Clayton Agri-Marketing, LLC
  - iv. Garrett Hawkins, Missouri Farm Bureau
  - v. Mike Deering, Missouri Cattlemen's Association
  - vi. Scott Swain, Darrick Steen and Clayton Light, Missouri Soybean Association
  - vii. Dale Ludwig, Missouri Hemp Association
  - viii. Jannie Dunning, Missouri Farm Bureau
  - ix. Darrick Steen, Missouri Corn Growers Association

### **II. September 15, 2020 Hearing**

- Location: Jefferson City, Missouri
- Witnesses:
  - i. Shannon Cooper, Missouri Forest Products Association
  - ii. Emily LeRoy, Missouri Department of Agriculture
  - iii. B.J. Tanksley, Missouri Farm Bureau
  - iv. Scott Swain, Missouri Soybean Association
  - v. Jason Zamkus, Missouri Corn Growers Association
  - vi. Steve Murphy, POET Bioprocessing and Missouri Renewable Fuels Association
  - vii. Janie Dunning, Missouri Farm Bureau
  - viii. Brian Smith, Missouri Rural Crisis Center
  - ix. Don Nikodim, Missouri Pork Producers Association

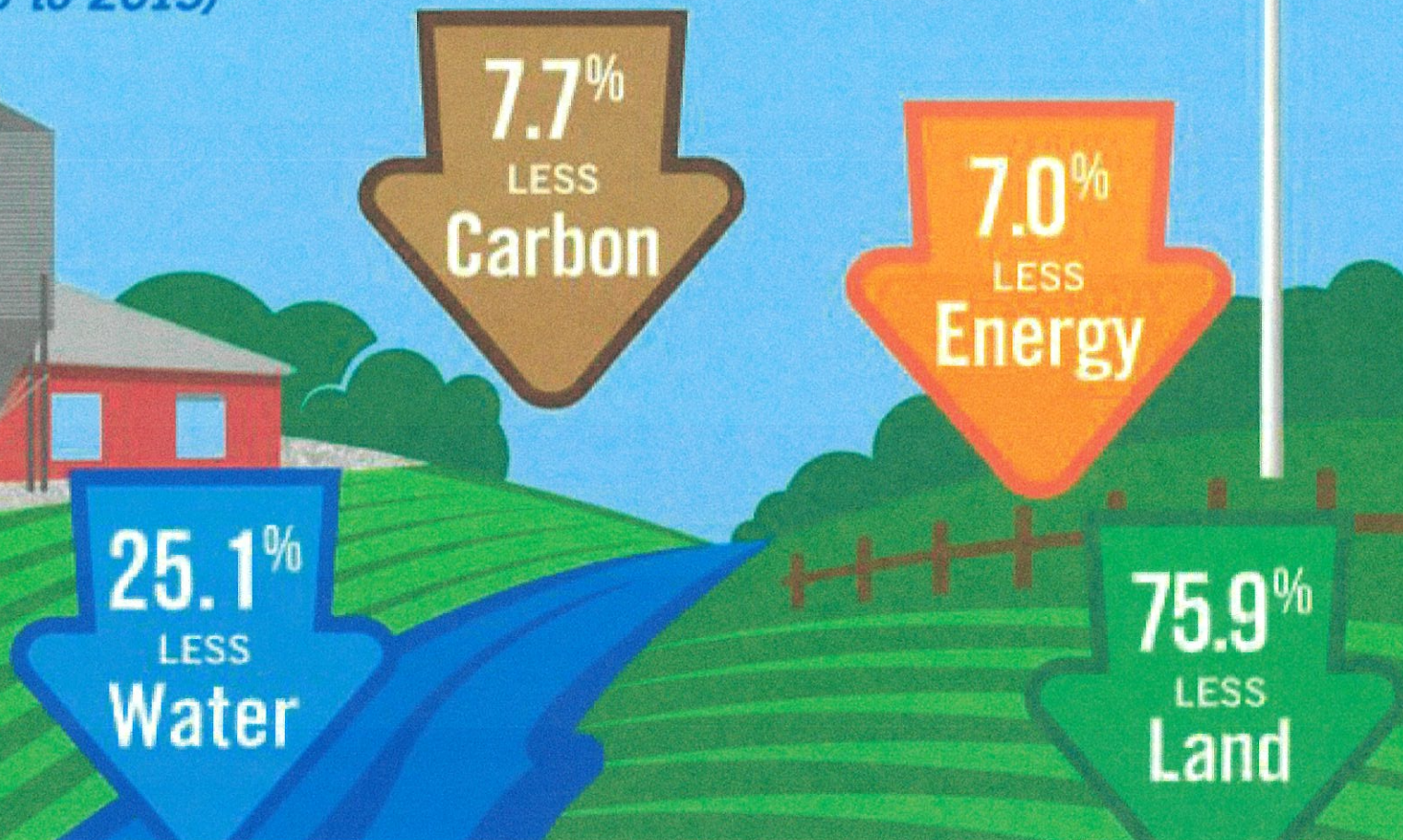


# Keeps Improving

Today's pig farmers embrace sustainability and new research from the University of Arkansas shows that pig farmers are using less land, water and energy. That also means a reduced overall carbon footprint.

From 1960 to 2015, continuous on-farm improvements in nutrition, genetics and overall pig care have made a positive difference.

## Improvements Per Pound of Pork Produced (from 1960 to 2015)





# Missouri Agriculture – Current Economic Issues and Future Outlook

**Dr. Scott Brown**

Agricultural Markets and Policy

Division of Applied Social Sciences

[browns@missouri.edu](mailto:browns@missouri.edu)

# Moving back to a more market orientation

- Larger portion of 2020 revenue from the federal government as a result of COVID19
- 2021 and forward
  - ▣ Returning to markets forces providing a majority of revenue
  - ▣ COVID-19 longer term effects at play
  - ▣ Trade will be important
  - ▣ Weather continues to play a large role in 2021

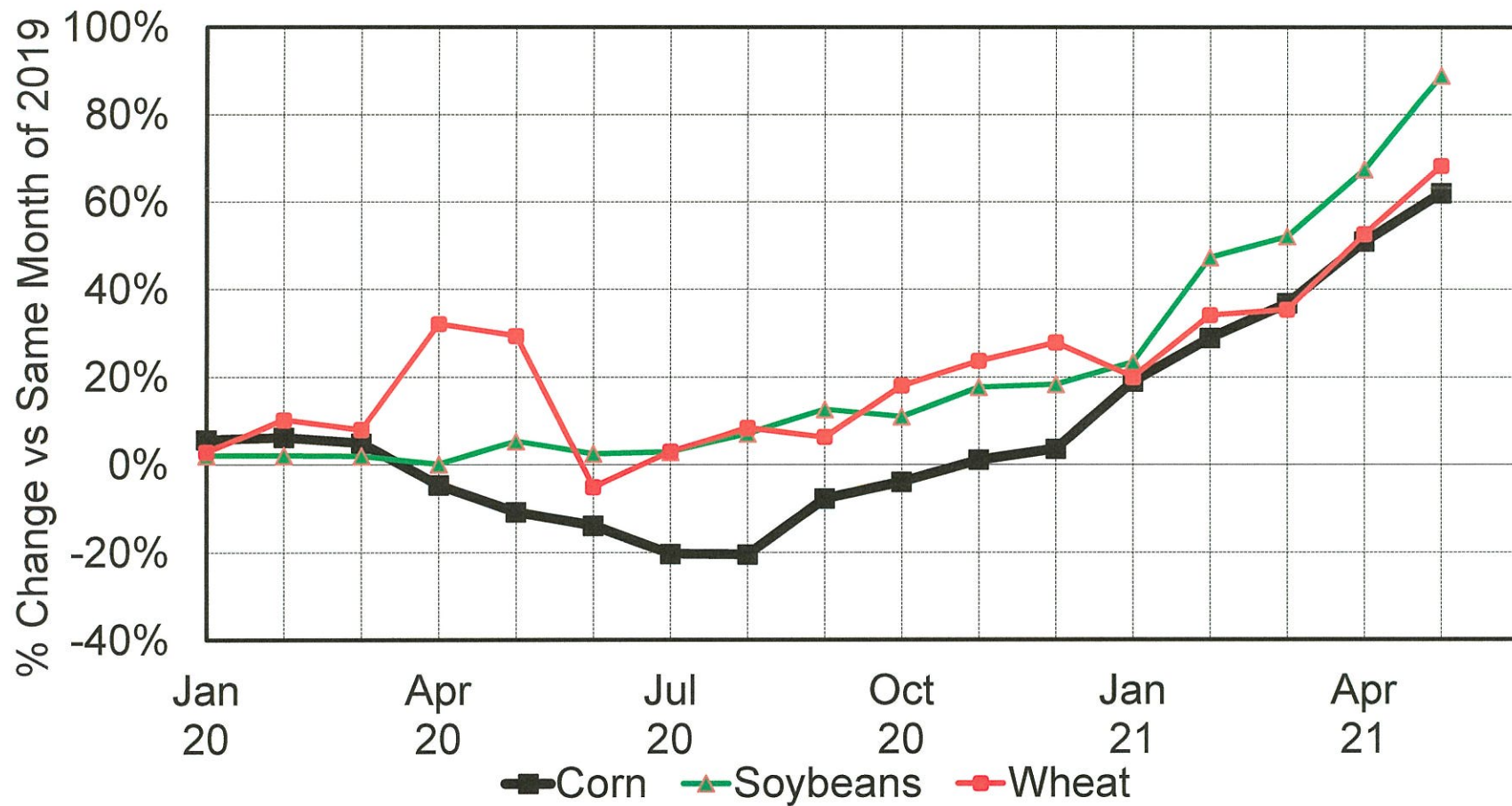
# Reviewing 2020 and COVID effects

- ❑ Prices of many commodities important to Missouri agriculture fell sharply lower last spring and summer
- ❑ The path to recovery has varied greatly from commodity to commodity as consumer behavior during and after lockdown restrictions differs by product
- ❑ The details of government policy response also impacted particular commodities differently
- ❑ **An accounting of simple assumptions shows more than \$400 million lost in Missouri cash receipts**
- ❑ There is more going on in ag markets than COVID



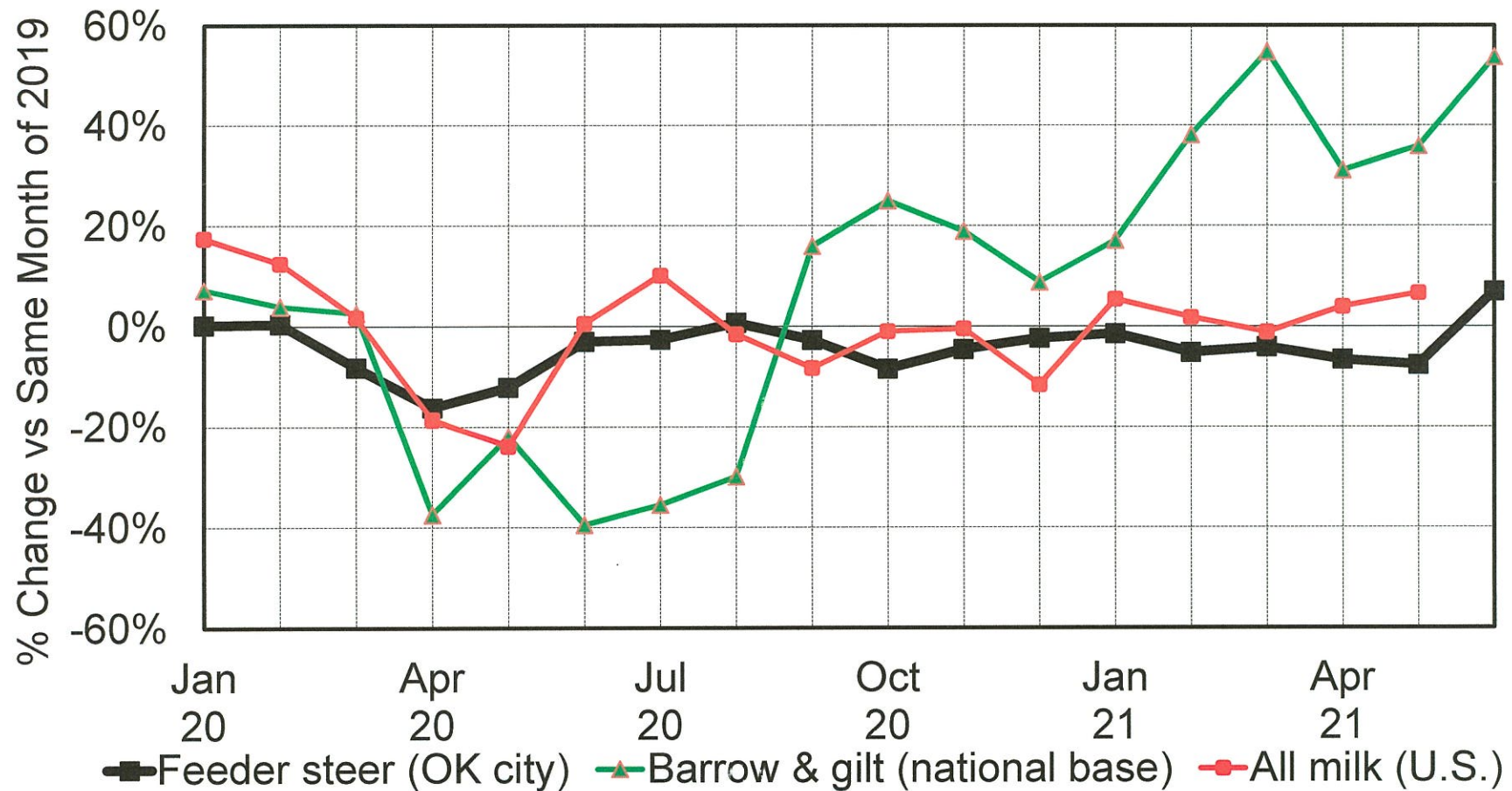
# Price Changes vs 2019

Missouri prices from USDA/NASS



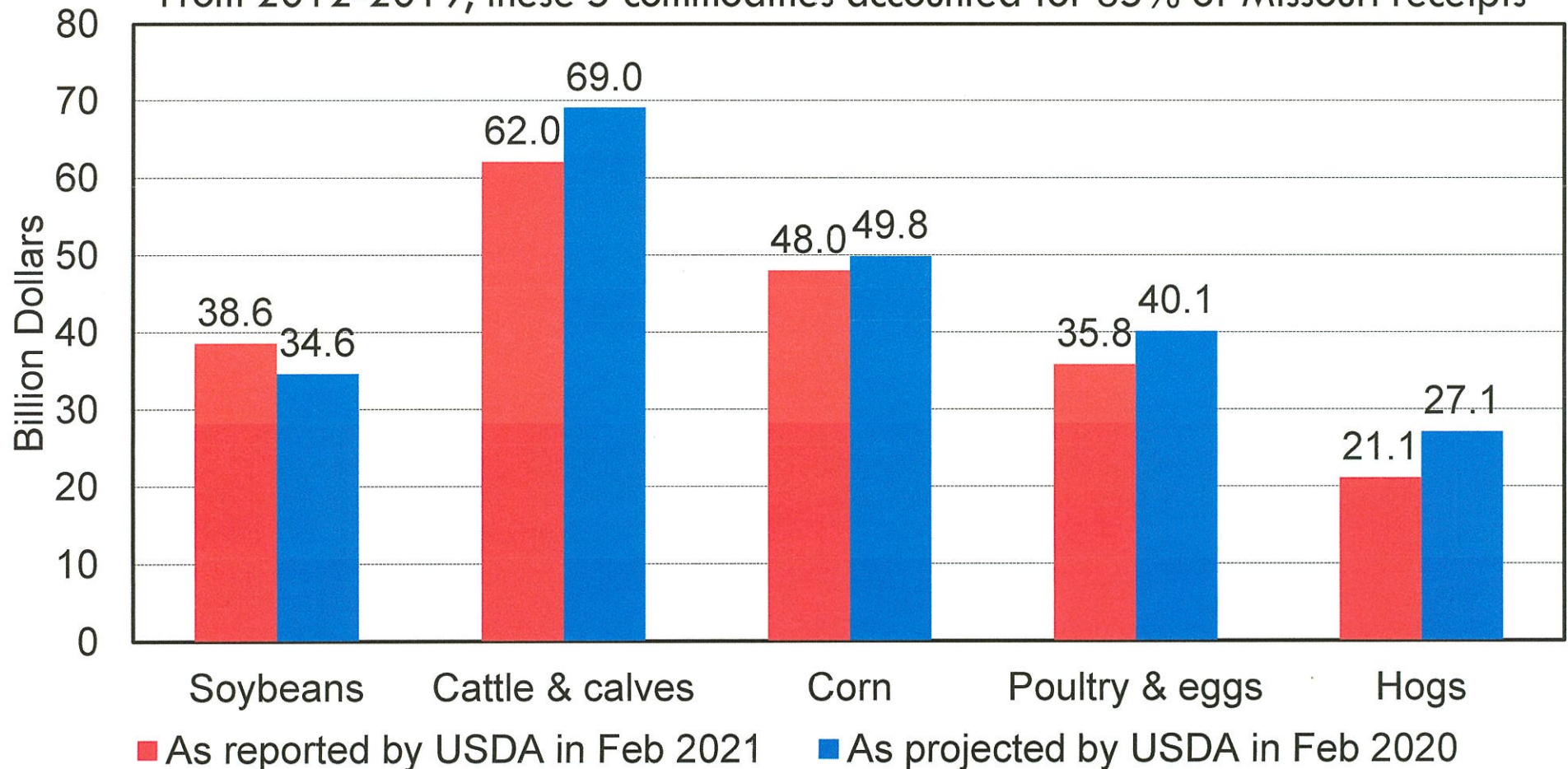
# Price Changes vs 2019

Nat'l indicator prices from USDA



# 2020 U.S. Cash Receipts

From 2012-2019, these 5 commodities accounted for 85% of Missouri receipts



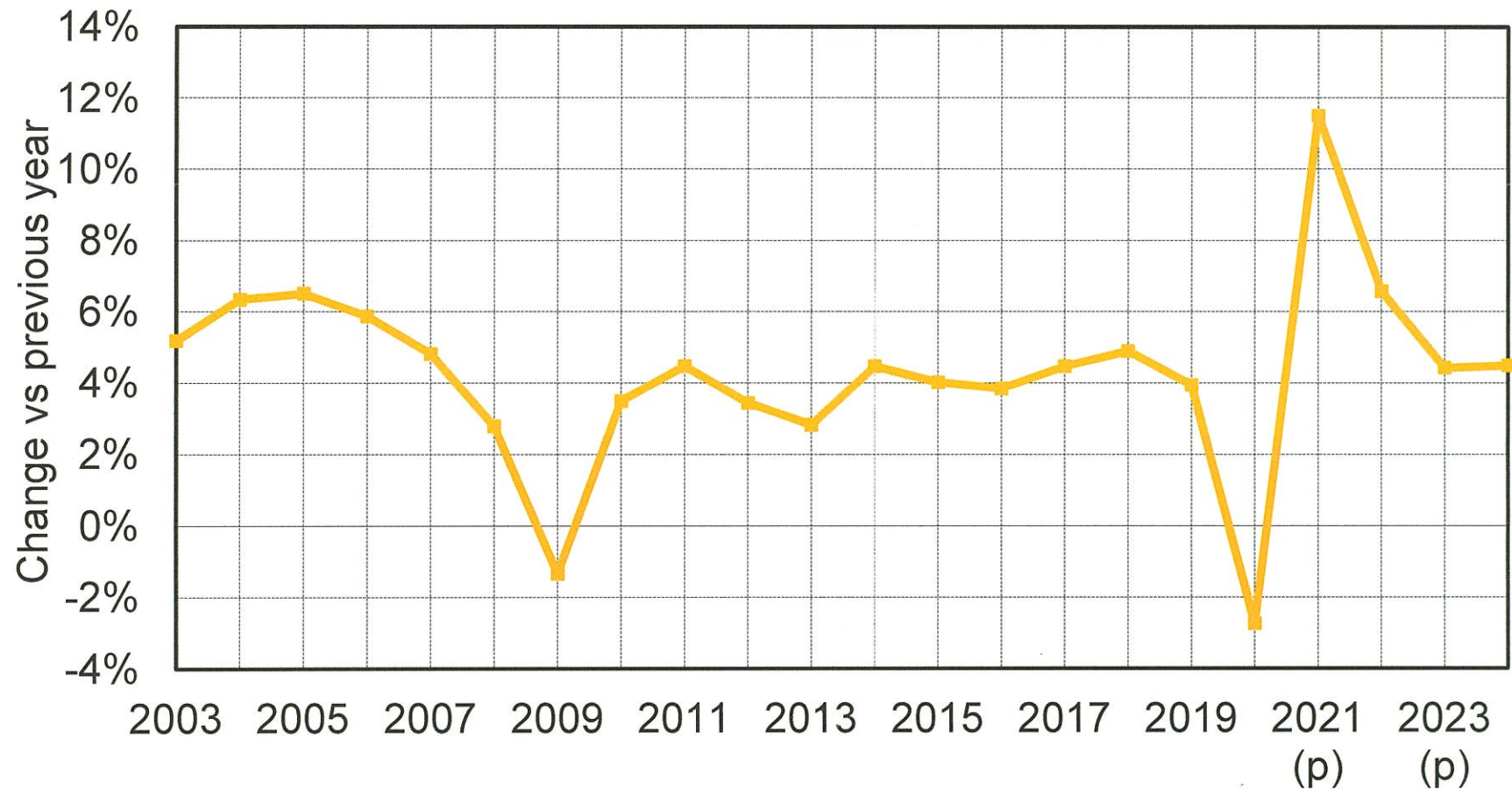


# Translating to 2020 Missouri Receipts

	Feb21 vs 20 – U.S.	MO as % of U.S.		Change to MO receipts (Mil. \$)
Soybeans	+ \$4.0B	6.0%		+ 240
Cattle	- \$7.0B	2.7%		- 189
Corn	- \$1.8B	3.4%		- 61
Poultry	- \$4.3B	3.3%		- 142
Hogs	- \$6.0B	4.4%		- 264
<b>SUM</b>	<b>- \$15.1B</b>			<b>- 416</b>

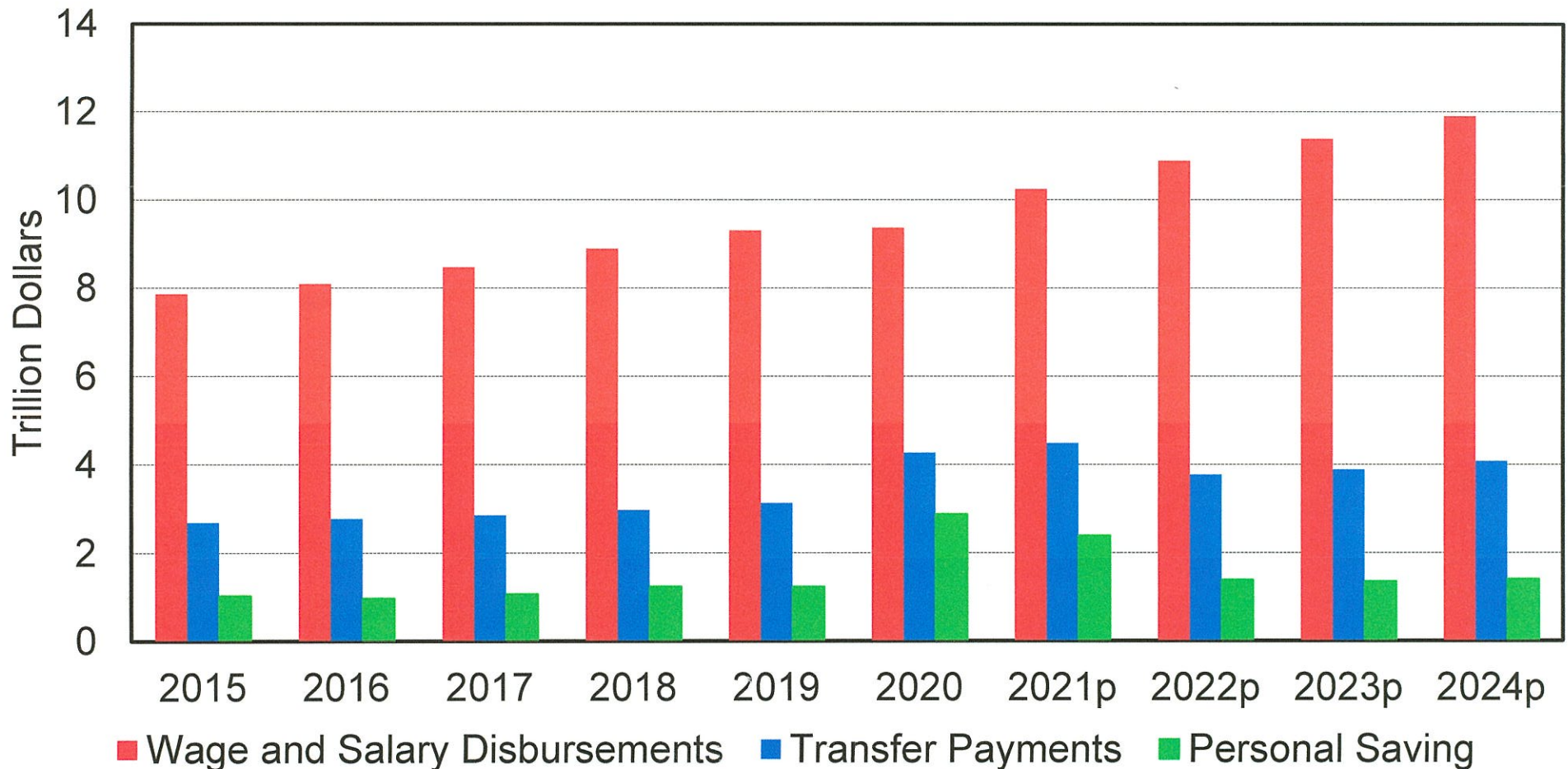


# U.S. Personal Consumption Outlays

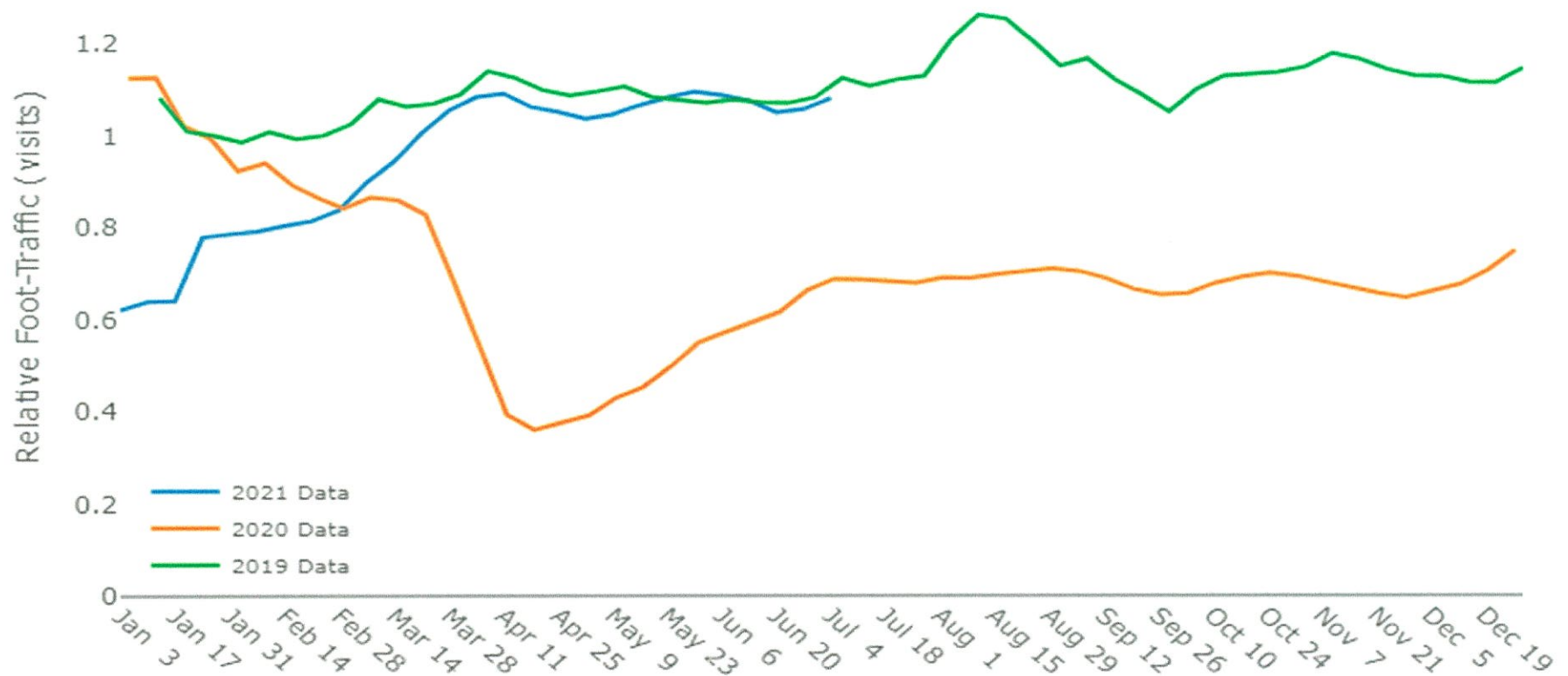




# Key Components of Personal Consumption



# Sit Down Restaurant Foot Traffic



# U.S. Corn Supply and Use, June 2021

	2019/20	Projected	
		2020/21	2021/22
<b>Planted area (mil. ac.)</b>	<b>89.7</b>	<b>90.8</b>	<b>91.1</b>
<b>Harvested area (mil. ac.)</b>	<b>81.3</b>	<b>82.5</b>	<b>83.5</b>
<b>Yield (bu./ac.)</b>	<b>167.5</b>	<b>172.0</b>	<b>179.5</b>
<b>Beginning stocks (mil.bu.)</b>	<b>2,221</b>	<b>1,919</b>	<b>1,107</b>
<b>Production</b>	<b>13,620</b>	<b>14,182</b>	<b>14,990</b>
<b>Imports</b>	<b>42</b>	<b>25</b>	<b>25</b>
<b>Total supply</b>	<b>15,883</b>	<b>16,127</b>	<b>16,122</b>
<b>Feed</b>	<b>5,897</b>	<b>5,700</b>	<b>5,700</b>
<b>Ethanol</b>	<b>4,857</b>	<b>5,050</b>	<b>5,200</b>
<b>Food, seed, other</b>	<b>1,430</b>	<b>1,420</b>	<b>1,415</b>
<b>Exports</b>	<b>1,778</b>	<b>2,850</b>	<b>2,450</b>
<b>Total use</b>	<b>13,963</b>	<b>15,020</b>	<b>14,765</b>
<b>Ending stocks</b>	<b>1,919</b>	<b>1,107</b>	<b>1,357</b>
<b>Stocks/use ratio</b>	<b>13.7%</b>	<b>8.5%</b>	<b>10.2%</b>
<b>Farm price</b>	<b>\$3.56</b>	<b>\$4.35</b>	<b>\$5.70</b>

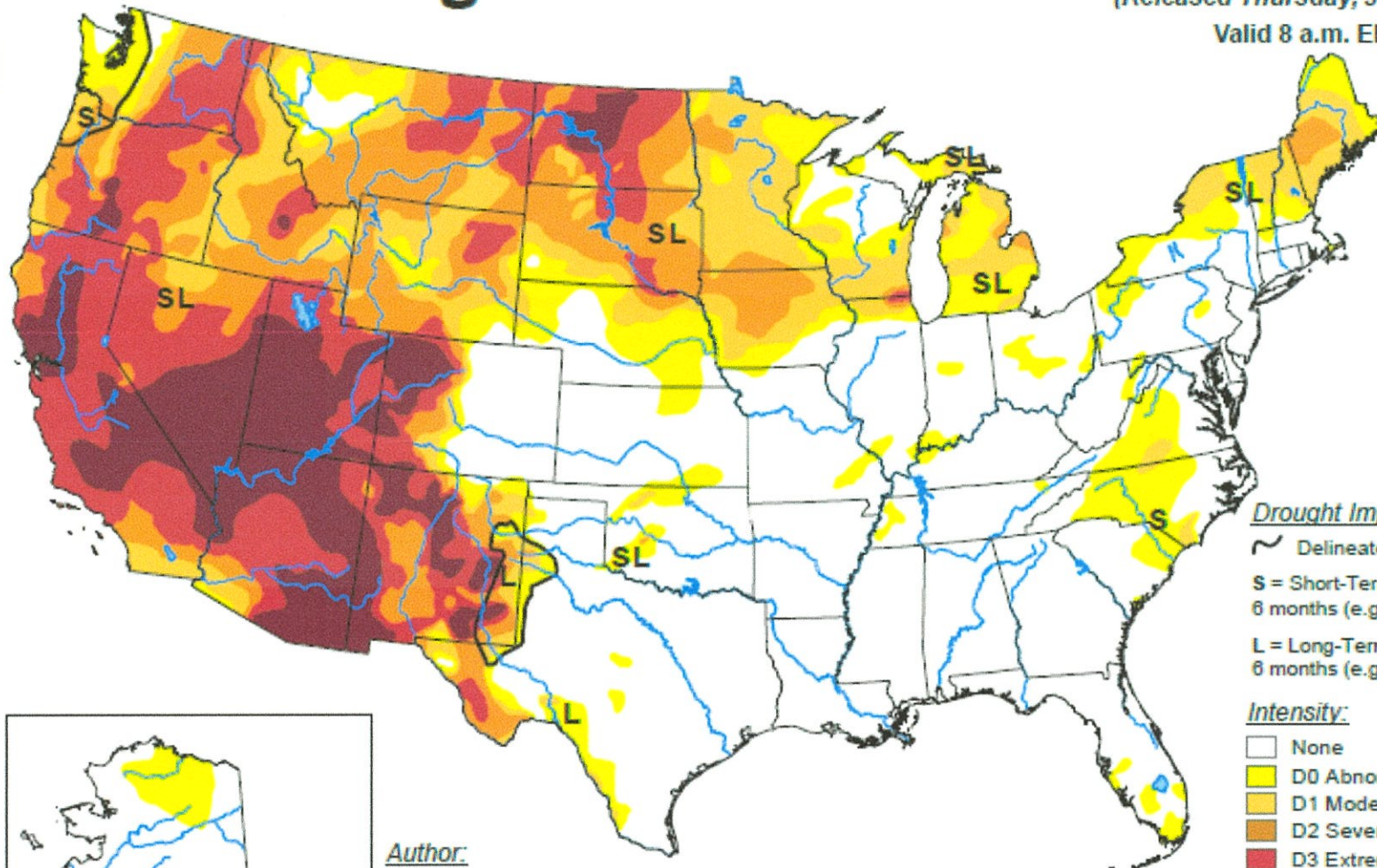


# U.S. Drought Monitor

June 29, 2021

(Released Thursday, Jul. 1, 2021)

Valid 8 a.m. EDT



## Drought Impact Types:

- ~ Delineates dominant impacts
- S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

## Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

Author:  
Deborah Bathke

# Questions

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Weekly Livestock Update, Brownfield Ag News

<https://brownfieldagnews.com/brownfield-livestock-market-updates/>





# Environmental Stewardship Programs

*Science, data and knowledge will drive modern, “smart” sustainable agriculture*

Farmers and ranchers are remarkable innovators who rely on 21st-century science, data, and precision technology.

The drive to continuously improve and embrace science & tech by US farmers has allowed our nation to grow more food on less land, with less inputs, and less impact.

Farming continues to be an innovative field - full of technology & science, but more importantly opportunity & promise.

At Missouri Corn and Missouri Soybean we work hard to invest farmers' checkoff dollars into research and programs to further **21<sup>st</sup> century** innovation, opportunities and goals.



# Environmental Stewardship Programs

Major Focus Areas for Research and Education Programming

- Ecosystem Credits and Markets
- Soil Carbon Sequestration
- Water Quality Monitoring
- Soil and Water Conservation
- Nutrient Management & Cover Crops
- Wildlife, Pollinators and Biodiversity
- Herbicide and Weed Mgmt. Tech.
- Climate Change
- Soil Health Research
- Crop Genetics and Breeding
- Agronomic Research



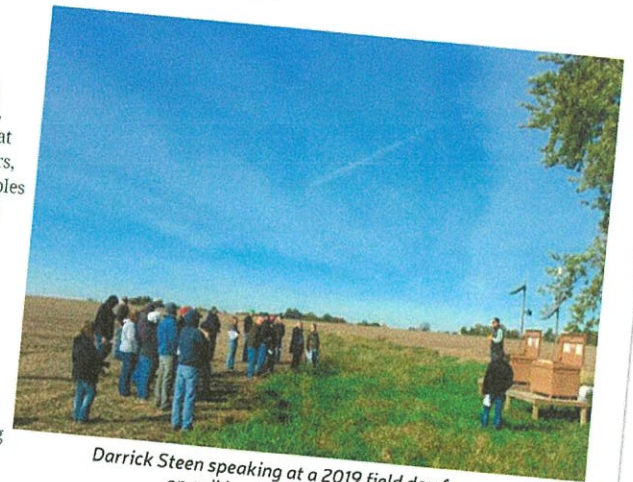
## Evolution in Sustainability

*Science, data and knowledge will drive modern, "smart" sustainable agriculture.*

*By Darrick Steen*

As we roll into 2021, conversations around sustainability have taken on new terminology, including regenerative, climate and carbon smart agriculture. Regardless of what we call it, farmers have a history of being remarkable innovators, putting the latest science, data, precision technology and principles of environmental sustainability to work. And while it's too early to know exactly what actions and impacts this evolving area of sustainability may drive, the changing conversation toward market-based approaches certainly sets the stage for new opportunities.

I might be biased, but I'd argue that soybean farmers are at the front of that pack for applying that leading-edge mindset to both production and uses for soy. From coming together in the 1960s to work on practical education to supporting research into everything from soil health and genetics to air and water quality, Missouri's



*Darrick Steen speaking at a 2019 field day focused on soil health and water quality*

Missouri Soybean Magazine – December 2020





# Ag Water Quality Monitoring Program

*Evaluating Nutrient & Soil Loss Reduction on Missouri Farms*



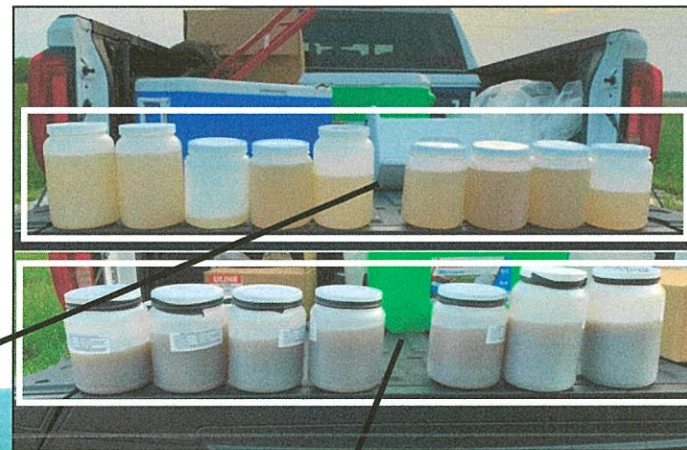


## Field observation with/without cover crop

May 2019  
3.75" rain event



Field w/ Cover Crops  
Event based soil loss = 53 lbs/ac



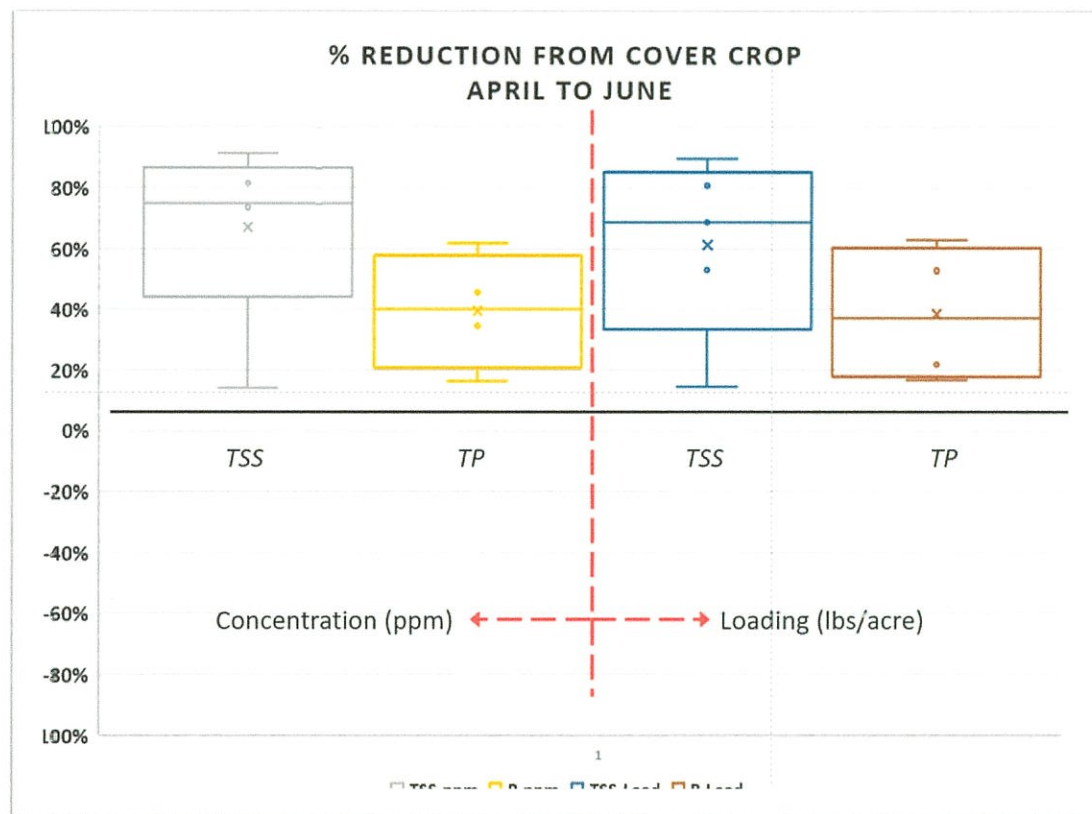
Field w/ out Cover Crops  
Event based soil loss = 516 lbs/ac

## Evaluating Nutrient & Soil Loss Reduction

Field 02 vs. Field 04

Average Reduction in Conc:

- 38% - TKN
- 70% - Nitrate
- 67% - TSS (soil)
- 40% - TP



*This dataset suggests that cover crops may reduce loading from 40% to 70% from April to June, the cover crop's active growing period.*





# Carbon Credit Markets

An “outcomes” and market-based approach to agricultural conservation.

Carbon Market Programs quantify and deliver verified carbon credits/outcomes.....they may deliver water quality and biodiversity credits too.

Markets may provide new opportunities and revenue for farmers thru sales of credits/outcomes generated on the farm to public and private beneficiaries.

Markets enable public and private entities to more quickly and more efficiently achieve regulatory and voluntary sustainability goals.



Missouri Soybean Magazine – April 2021



## Carbon Markets, Credits & Trading

*As investments in soil health continue, Missouri welcomes a pilot project to evaluate innovation and market opportunities around soil carbon.*

By Darrick Steen

Soil health research and education have been an important checkoff investment area for the Missouri Soybean Merchandising Council for many years. That research has led to new grower insights and recommendations for using cover crops, as well as other management practices to further soybean production and conservation goals. More recent developments around the emerging field of agricultural carbon markets are raising questions, and driving new interest and optimism about income opportunities from growers' soil health investments.

Over the past year, private and non-profit companies of various sizes and types have been busy developing and announcing new sustainability programs, many of which include some form of market based approach to the selling or trading of agriculture carbon credits.

Questions remain at this early stage, including how different carbon market programs are being developed, how and why they operate, as well as the market drivers behind them. These are all questions that have been front of mind for the Missouri Soybean Merchandising Council.



MISSOURI  
SOYBEANS



# CARBON PILOT Program

## Partnership Opens Doors to Explore Carbon Markets, Credits and Trading

Missouri farmers looking to better understand carbon markets have a new opportunity through an entirely voluntary pilot project led by leading agricultural organizations. Farmers who choose to enroll will have **the opportunity to test new innovations in quantifying carbon and water quality benefits** and provide input to guide program development.

The pilot comes through partnership among Ecosystem Services Market Consortium (ESMC) and the Missouri Corn Merchandising Council, the Missouri Soybean Merchandising Council, and MFA Incorporated. Within the pilot program, farmers have **a low-risk opportunity** to better understand the agricultural carbon and water quality markets. The two-year pilot project began with the 2021 growing season, and is slated to continue through 2022.



**There is no cost to the farmer to enroll in the pilot.**

(573) 635-3819 | [www.mocarbonpilot.com](http://www.mocarbonpilot.com)



- The program will **quantify and certify carbon and water quality credits** on enrolled acres from the adoption of eligible on-farm practices.
- **Soil sampling** is central to the pilot project, and made possible through the corn and soybean checkoff programs and MFA.
- **Farmers who are considering conservation practices**, such as cover crops, reduced tillage or precision nitrogen management, are great candidates for this pilot project.

## Enrollment

- There are **no minimum acreage limits**. Farmers can choose to phase in more acres and/or practices over time.
- During the Missouri pilot, there will be a **limited number of total acres** that can be enrolled.
- In the pilot project, **farmer contracts with ESMC are annual**. At the conclusion of the pilot, farmers may have the option to roll into either a 5 or a 10-year contract.
- **There is no cost to the farmer to enroll in the pilot.**

## Payment

Farmers who participate in this pilot have the **potential to generate certified ecosystem credits** that can be sold following certification of the credits.

## About ESMC

Ecosystem Services Market Consortium is a non-profit organization that works to compensate farmers and ranchers for the value of positive environmental impacts made through the adoption of sustainable agricultural production systems.

**Missouri Corn, Missouri Soybean and MFA staff will be available to assist in the enrollment process.**  
To get started, visit [www.mocarbonpilot.com](http://www.mocarbonpilot.com).

(573) 635-3819 | [www.mocarbonpilot.com](http://www.mocarbonpilot.com)



**Farmers who are considering conservation practices are great candidates for this pilot project.**





# Biodiversity Credit Pilot

## *Exploring innovative ways to further wildlife conservation goals.*

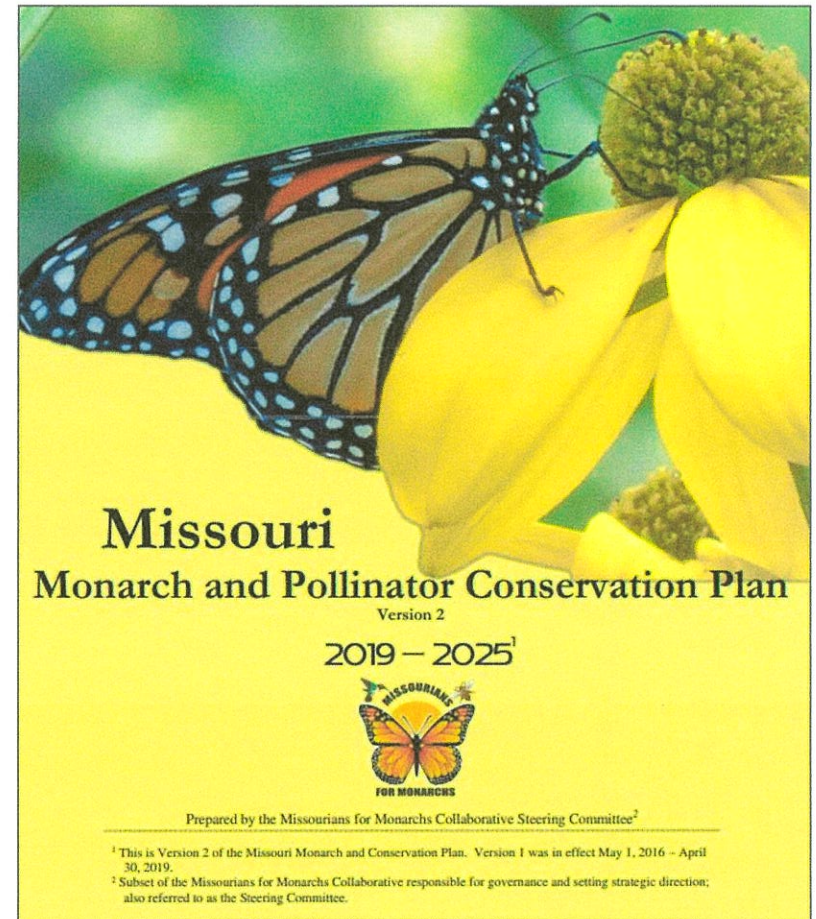
Goal - enhance native wildlife habitat and biodiversity on Mo farms through innovative market-based approach.

Opportunity – rewarding farmers for practices that produce positive wildlife biodiversity outcomes.

A partnership with the Missouri Dept. of Conservation.



Serving nature and you



<sup>1</sup> This is Version 2 of the Missouri Monarch and Conservation Plan. Version 1 was in effect May 1, 2016 – April 30, 2019.

<sup>2</sup> Subset of the Missourians for Monarchs Collaborative responsible for governance and setting strategic direction; also referred to as the Steering Committee.





*Coming CY 2022*

Goal – provide new opportunities to enhance soil, carbon and water quality on Missouri farms.

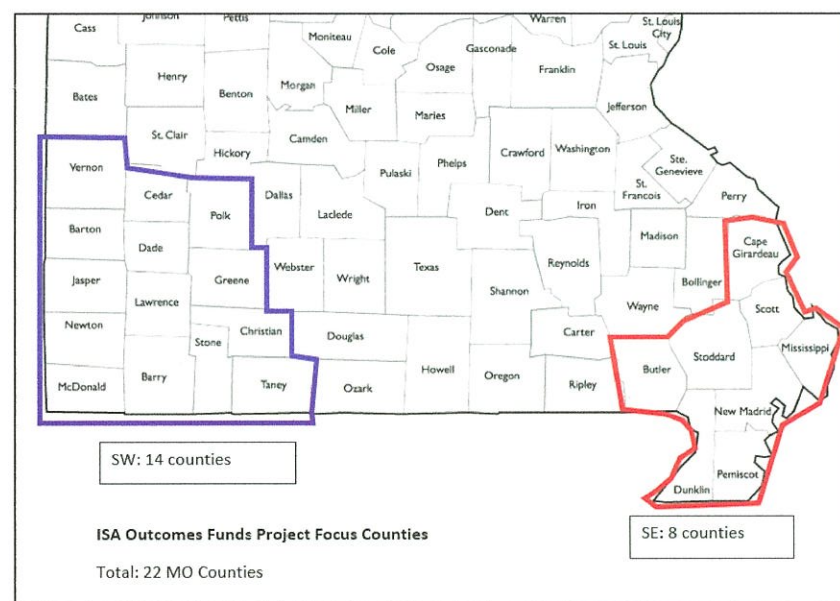
Opportunity –new revenue streams for farmers from sale of carbon and water quality “Outcomes” to public and private beneficiaries.

Crop Systems - Corn, Soybean and Rice.

Partnership with Iowa Soybean Assoc. and others.

For More Info: [www.theoutcomesfund.com](http://www.theoutcomesfund.com)

*Enrolling for 2022 in SE and SW MO.*





## *Center for Soy Innovation*



Jefferson City, Missouri

## *Bay Farm Research Facility*



Columbia, Missouri



Darrick Steen  
Environmental Director  
[dsteen@mosoy.org](mailto:dsteen@mosoy.org)

Clayton Light  
Conservation Manager  
[clight@mosoy.org](mailto:clight@mosoy.org)



# Joint Committee on Agriculture

July 6, 2021





# The Future of Agriculture Requires Better Broadband

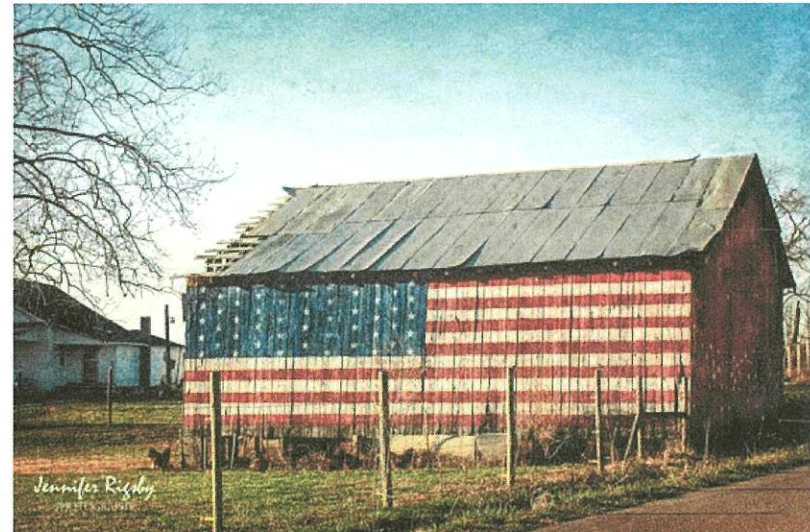
- Definition of Broadband
  - Congress definition – Capability that allows users to “originate and receive high-quality voice, data, graphic and video” services. Essential to economic development, public health, educational opportunities and yes, to agriculture.
  - MOFB definition – means everyone has access to reliable broadband at speeds that will allow them to do what is needed and at prices they can afford. If any one of these is missing, then you do not have adequate broadband
- Today, our focus is broadband and:
  - Precision Agriculture
  - Agritourism
  - Agribusiness



## Why Is Broadband Important to Agriculture in General

- 86% of products sold nationally are produced on family farms and ranches
- 1 US farm feeds 166 people
- Farmers and ranchers comprise less than 2% of US Population
- Population is expected to increase 2.2 billion by the year 2050 meaning farmers will have to produce 70% more food than they are producing now
- Farmers and ranchers have seen a 50% decline in net farm income in the last 4 years
- After input cost, farmers and ranchers receive 8 cents out of every dollar spent on food
- Americans spend only 10% of disposable income on food or 10 cents of every dollar
- 29% of US farms do not have access to the internet

**BROADBAND IS THE ONE AREA OF  
INFRASTRUCTURE THAT CAN AFFECT AND IMPROVE  
ALL OF THE FACTS ABOVE!**



**MISSOURI  
FARM BUREAU**

## Why Is Broadband Important to Agriculture in Missouri



- Agriculture is our #1 industry
- Employs nearly 400,000 people in the state
- Home to 95,000 farms covering two-thirds of the state's total land acreage
- Economic contribution - \$88 billion industry
- Missouri Standings in National Rankings
  - 2<sup>nd</sup> in number of farms
  - In top 20 nationally for production of 12 different crops and livestock
  - High value of exports of agricultural products
  - Large line of infrastructure allowing Missouri to get products to market faster and cheaper





## Why Is Broadband Important to Agriculture in Missouri



- Agritourism can bring many benefits to farmers, visitors and communities
  - Farms offer a diverse variety of recreational activities with tours, u-pick crops, and just learning about agriculture processes and that they do not just come from the store
  - Several years ago, this business received more than a million visitors and that number increases each year
  - Agritourism farms reported higher gross sales
  - Creates employment opportunities
  - Preserves our natural and cultural heritage
  - Missouri products are diverse, so opportunities are great

**NEED ADEQUATE BROADBAND TO MARKET  
MISSOURI AS AN AGRITOURISM STATE!**



## What's Missing

- Traditionally, discussions on broadband have been about:
  - Healthcare
  - Education
  - Business and workforce
- Agriculture and related businesses have not been a priority or even discussed much
- Not because agriculture is not important, but because getting broadband to farmers and ranchers is hard and it is costly
- And frankly, we don't know what we don't know. Broadband and the connection to Agriculture is the one area where not much data or information exists. This needs to be a top priority as we cannot address a problem if we do not know the current status.



## With Good Broadband in Agriculture.....



- Precision agriculture is enabled by digital tools
  - Improved agricultural productivity, efficiency and sustainability
  - Improved environmental care and oversight
  - Increased farm profits
  - Decreased food insecurity by feeding more people with increased production
  - Increased food safety – can trace food products
  - Sustainability defined with use of 40% less fuel, decreased water usage by 20-50% and reduced chemical application up to 80%
- Agribusiness and Agritourism
  - Allows automation
  - Access to technology helps provide labor support
  - Market access is expanded

## With Good Broadband in Agriculture.....

- Quality of Life for Rural Communities and Farm Families is Improved
  - Not just recreation
  - Ability to learn online
  - Apply for government benefits
  - Access to medical care without driving distances
  - Access to mental health support
    - Rural areas have the highest suicide rates of any geographical area
    - Help can be found virtually with specialists that are not available locally
- Economic Benefits
  - Ratio 4:1 – for every \$1 invested in broadband the return to the economy was \$4

**Broadband is a powerful Economic Development Engine**





## Rural Missouri and Farmers and Ranchers

- When we talk about broadband needed in rural communities, farmers and ranchers are included – they are interchangeable
- They need each other to thrive, earn a good living, give back to each other and live where they want to live. A farmer needs a thriving community to do business in and a community needs a farmer to contribute to the community's economy
- It is difficult to get broadband deployed in rural communities, but it is even more difficult to get broadband access as we move outside the community to the farms
  - More sparse population to divide deployment costs
  - Speed needs are greater



## Broadband Deployment Costs

- Infrastructure costs vary depending on type of technology
- Costs below are from USDA in 2018 so they have changed and probably increased
- USDA included benefits and deficiencies in their analysis
- Buried/Underground
  - Average construction cost per mile: \$32,000-\$50,000
  - Greater Network Protection
  - Longer Installation Period
  - Least visual impact
  - Less maintenance/longer life



## Broadband Deployment Costs



- Aerial/Pole Line
  - Average construction cost per mile - \$16,000 - \$25,000
  - Exposed to weather and vandalism
  - Shorter installation period
  - Greater visual impact
  - Often requires join-use, shared facilities
  - Easier access – greater maintenance



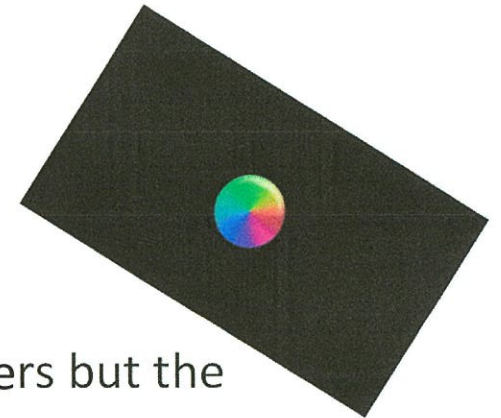
## Broadband Deployment Costs

- Fixed Wireless
  - Average new construction cost per TOWER - \$200,000 - \$300,000
  - Highly susceptible to adverse weather
  - Quicker development
  - High visual impact
  - Need for greater bandwidth still requires a wireline connection
  - Bandwidth and quality of service affected by geographical terrain
- No costs on wireless, cable or satellite



## Considerations

- Data is over-stated on who is served with broadband
- Reports of served include awards of broadband to providers but the deployment has not yet occurred
- Reports of served may be missing other factors such as whether it is at a speed that can do what is needed, whether it is reliable and is not interrupted by weather or geographical terrain, and whether it is priced reasonably for the end user
- And most importantly for the area of agriculture, there is not much data or information to show who is served, who is not, what is being used in precision ag and ag related areas





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## Wireline or Fixed Wireless Broadband Speeds Coverage Missouri State

CQA

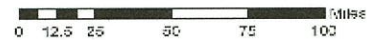


Source: FCC Form 477 data - June, 2019

\*Served area: census blocks with wireline or fixed wireless broadband internet service of speeds of at least 25 Mbps download and 3 Mbps upload.

\*\*Underserved area: census blocks without wireline or fixed wireless broadband internet service of speeds of at least 25 Mbps download and 3 Mbps upload.

\*\*\*Unserved area: census blocks without wireline or fixed wireless broadband internet service of speeds of at least 10 Mbps download and 1 Mbps upload.



Map: HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community. Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS user community.



## MOFB Rural Broadband Principles

### MOFB

- Push Data Accuracy and Mapping
- Hold Providers Accountable
- Plan for the Future
- Foster Local, State, and Federal Partnerships
- Focus on Precision Agriculture and Ag Related Activities



THIS IS A  
BIG DEAL!

Broadband that is fast, reliable and affordable is essential to the agriculture communities for Missouri to prosper!

It is no longer nice to have, *it's a necessity*. For our state, our communities, our businesses, our farmers and ranchers, our families and ourselves.



# Questions/Comments



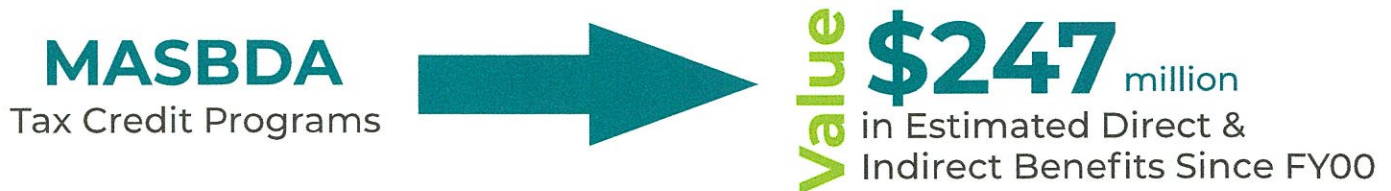




A commission housed within the Missouri Department of Agriculture. MASBDA has authority to issue up to \$8.3 million in tax credits annually.

### Our Mission

The Missouri Agricultural and Small Business Development Authority makes capital available to Missouri farmers, particularly independent producers, agribusinesses and small businesses at competitive interest rates on a scale to make a major impact.



### New Generation Cooperative Incentive Tax Credit Program

Expires 12/31/2021. **SB 354 and HB 693.**

The purpose of this tax credit is to induce private investment in new generation cooperatives, which will process Missouri agricultural commodities and products into value-added goods, provide substantial benefit to Missouri's agricultural producers, and create jobs for Missourians.

	Lifetime	5-Year Average	FY21 YTD
Number of Projects	81	3	1
Amount of Tax Credits Issued	\$63,423,003	\$1,247,617	\$924,250
Producer Member Investments	\$501,147,088	\$3,553,184	\$1,993,833
Number of Tax Credits Issued	15,245	417	104
Total Amount Allocated as of 1/20/21 *Pending Project Completion			\$9,350,000
Estimated Direct & Indirect Benefits (FY00-FY20)	\$174,421,250		
Direct Cost (FY00-FY20)	\$52,606,827		
<b>ROI - Expected Benefit for Every \$1 of Cost</b>	<b>\$2.32</b>		

\*The New Generation Cooperative Incentive Tax Credit and the Agricultural Product Utilization Tax Credit share a combined annual allocation cap of \$6 million, with first priority given to New Generation projects.

### Agricultural Product Utilization Contributor Tax Credit Program

Expires 12/31/2021. **SB 354 and HB 693.**

The authority may provide a tax credit to a person, partnership, corporation, trust, limited liability company, or other entity who contributes cash to the authority. The contribution is used for financial or technical assistance to rural agricultural business concepts.

	Lifetime	5-Year Average	FY21 YTD
Amount of Tax Credits Sold	\$32,101,764	\$1,964,251	\$0*
Amount of Contributions Received for Tax Credits	\$32,694,929	\$2,057,990	\$0
Number of Tax Credits Approved	1,349	76	0
Estimated Direct & Indirect Benefits (FY00-FY20)	\$60,522,957		
Direct Cost (FY00-FY20)	\$27,663,705		
<b>ROI - Expected Benefit for Every \$1 of Cost</b>	<b>\$1.19</b>		

\*Agricultural Product Utilization Tax Credits are not made available until May 1 each fiscal year. The Agricultural Product Utilization Tax Credit and the New Generation Cooperative Incentive Tax Credit share a combined annual allocation cap of \$6 million, with first priority given to New Generation projects.

## Value-Added Agricultural Grant & Farm to Table Grant Program

**SB 354 and HB 693.**

The Value-Added Agriculture Grant helps producers fund planning activities such as feasibility studies, business plans and marketing plans for projects that add value to agricultural products and positively impact Missouri communities. The Farm to Table Grant funds resources for producers and small businesses which process locally grown agricultural products for use in Missouri schools and institutions. These programs are funded through the sale of Agricultural Product Utilization Contributor Tax Credits.

	Lifetime	5-Year Average	FY21 YTD
Number of Value-Added Grants Awarded	323	13	21
Amount of Value-Added Grants Awarded	\$24,753,148	\$1,151,485	\$1,472,805
Number of Farm to Table Grants Awarded	18	2	1
Amount of Farm to Table Grants Awarded	\$2,022,416	\$262,555	\$115,000

## Meat Processing Facility Investment Tax Credit Program

Expires 12/31/2021. **SB 355 and HB 948.**

The Meat Processing Facility Investment Tax Credit stimulates investment in meat processing to enable the livestock industry to capture more value in the form of further processed products. Meat processing facilities located in Missouri that construct, improve, or acquire buildings, facilities, or equipment used exclusively for meat processing are eligible. This program began accepting applications Jan. 2, 2018.

	Lifetime	3-Year Average	FY21 YTD
Number of Tax Credits Issued	47	14	6
Amount of Tax Credits Issued	\$2,752,042	\$667,347	\$450,000
Investment in Modernization and/or Expansion	\$23,591,803	\$6,969,832	\$2,682,308
Number of Jobs Created	484	150	2
Estimated Direct & Indirect Benefits (FY18-FY20)	\$5,956,902		
Direct Cost (FY18-FY20)	\$662,579		
<b>ROI - Expected Benefit for Every \$1 of Cost</b>	<b>\$7.99</b>		

\*The Meat Processing Facility Investment Tax Credit has an allocation cap of \$2 million annually.

## Family Farm Breeding Livestock Loan Program

**SB 490 and HB 645.**

This program provides tax credits to lenders in lieu of the first year's interest being paid on breeding livestock loans made to "small farmers."

	Lifetime	5-Year Average	FY21 YTD
Number of Tax Credits Issued	363	20	8
Amount of Tax Credits Issued	\$780,686	\$45,684	\$23,016
Total Purchase Price of Livestock	\$13,675,934	\$963,444	\$428,760
Number of Livestock Qualified	11,459	542	266
Estimated Direct & Indirect Benefits (FY08-FY20)	\$6,695,111		
Direct Cost (FY08-FY20)	\$844,249		
<b>ROI - Expected Benefit for Every \$1 of Cost</b>	<b>\$6.93</b>		

\*The Family Farm Breeding Livestock Loan tax credit has an allocation cap of \$300,000 annually.



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(573) 751-5624

**Emily LeRoy**, Legislative Liaison  
Emily.LeRoy@mda.mo.gov  
(573) 522-6715



Economic analysis provided by the University of Missouri using the IMPLAN model.  
Updated: Feb. 15, 2021



\$ 2.829

\$

\$ 3.329

\$

Unleaded

Premium

\$ 2.679

\$

E15

\$ 2.579

\$

E30

\$ 2.329

\$

E85

87

P R E M I U M

91

P R E M I U M

E15

Use only in  
flex-fuel vehicles  
that can run on E15  
gasoline. Do not use in  
vehicles that cannot run on  
E15 gasoline. E15 is not  
recommended for use in  
older vehicles.

30% ETHANOL

USE ONLY IN  
FLEX-FUEL VEHICLES

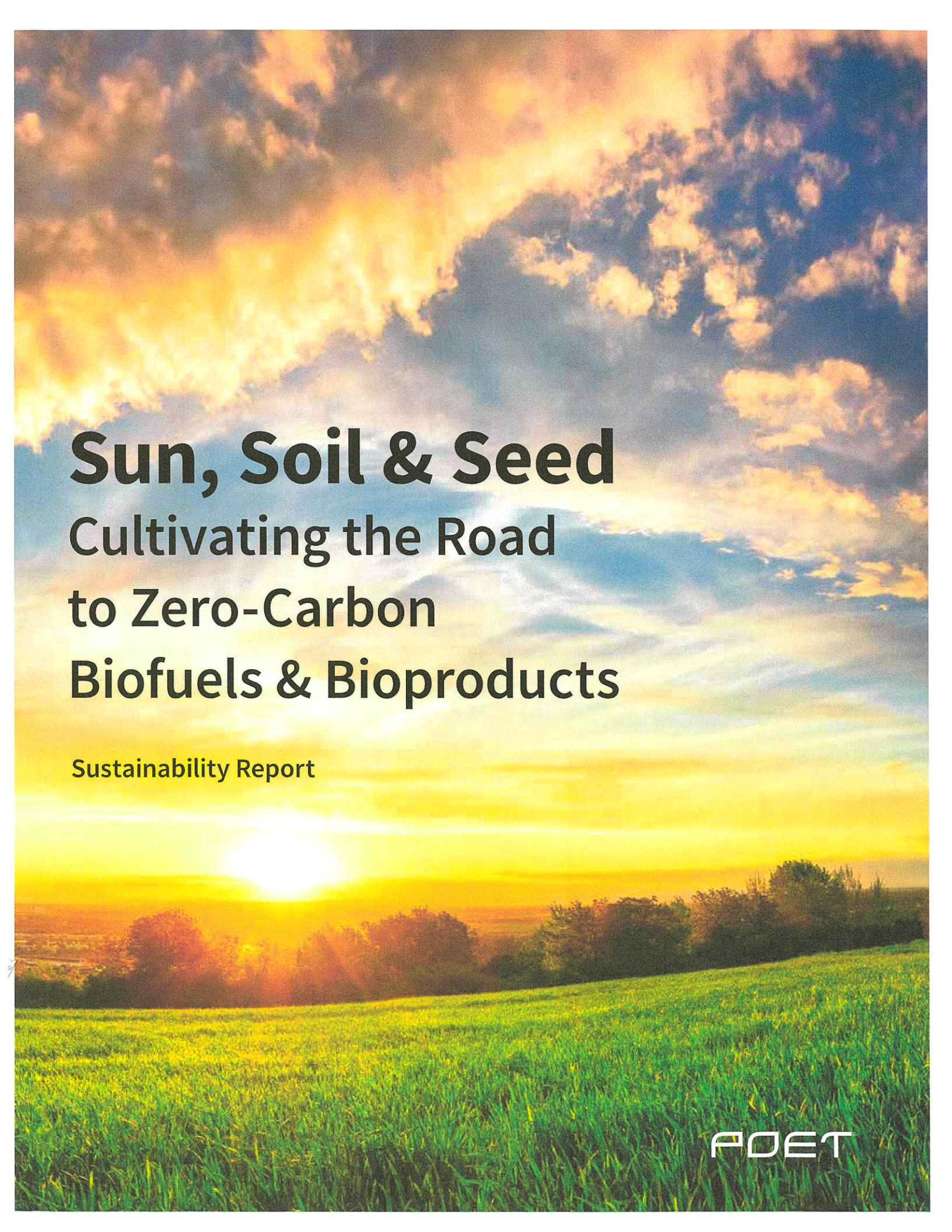
DO NOT MIX WITH OTHER FUELS

51% - 83%  
ETHANOL

USE ONLY IN  
FLEX-FUEL VEHICLES

DO NOT MIX WITH OTHER FUELS





# **Sun, Soil & Seed** Cultivating the Road to Zero-Carbon Biofuels & Bioproducts

Sustainability Report

POET



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## Letter from CEO

**The Earth was made to thrive in natural rhythm, like music — or poetry.**

**But we have taken too much from our planet for too long, and it's only a matter of time before the effects of our actions become irreversible.**

**That's why, at POET, we're working every day to restore harmony between human and nature.**

POET's enduring vision to create a world in sync with nature began over 30 years ago. As the world's largest producer of bioethanol and a leader in other bioproducts, we strive to revitalize global agriculture and provide practical, plant-based alternatives to decrease our dependence on fossil fuels.

Sustainability has always been at the heart of our business and is the core to our success.

It's our purpose — our "why."

It's a commitment that is brought to life by the suite of Earth-friendly products we've created, the dedication of our team members, and the economic viability and wellbeing of the communities we call home.

While this is our first sustainability report, we've been at work improving our environment since the founding of POET. Today we are taking on climate action on many fronts, including updating our sustainability goals and pursuing policy that helps consumers reduce their everyday environmental impact by expanding access to cleaner, lower-carbon biofuel blends across the nation.

We are investing in the latest biotechnology to promote efficiency and produce even cleaner renewable energy.

We are continually diversifying our business to meet worldwide needs, creating plant-based bioproducts that displace toxic petrochemicals.

We are working toward producing more bioethanol made from low-carbon grain by partnering with farmers throughout our footprint who are leading the way in regenerative agricultural practices.

And we are always aiming to give back, both in the Midwestern communities that have been so good to us and in developing nations all over the world. Whether it's through our time, our resources, or our hands-on involvement, we hope to have lasting positive impacts — not just at home, but across the globe.

Simply put, our products and — perhaps most importantly — our people are making the world a better place.

*And we're just getting started.*

Our experience over the past three decades has proven that sound

corporate stewardship and world-class environmental performance are fundamentals of good business. By outlining our vision for sustainability, we aim not only to position POET for long-term success, but to blaze a trail in the global transition to decarbonization.

Throughout this inaugural report, we share some of the outcomes of our previous sustainability efforts and discuss our strategy moving forward. The intent of this report is to truly challenge ourselves to focus on key areas where we can do better. We're setting the bar high to ensure a sustainable future for all.

Make no mistake — we are at a tipping point. We are seeing the effects of climate change more every day. Right now, the world needs leaders to lead and innovators to innovate.

At POET, we believe in the power of agriculture to play a key role in solving global challenge. We believe in embracing Earth's inherent rhythm and harvesting energy from its surface to compose a brighter future. We believe in a world where farmers are the creators and innovators are the heroes.

Just as a poet turns ordinary words into extraordinary prose, we will continue to use the simple gifts God has provided — the sun, the soil, and the seed — to cultivate a better world for generations to come.

**Jeff Broin**  
POET Founder & CEO





## About POET

POET is an innovative, global leader in the production and distribution of renewable bioproducts including plant-based food, beverage and personal care product ingredients, biofuel, high-protein animal feed, renewable CO<sub>2</sub> and a variety of other bio-based alternatives to petroleum.

POET recognizes that our planet urgently needs bolder solutions and even better results today if we hope to sustain Earth's fragile balance tomorrow. We believe everything we need can be grown from the surface of the Earth. That is why we are focused on cultivating the bio-based solutions our world needs using the power of the sun, the soil, and the seed.

We work with more than 40,000 farmers across the country, using the latest biotechnology to turn their crops into sustainable bioproducts that can be used in consumers' everyday lives. POET operates 33 bioprocessing facilities across the Midwest to produce three billion gallons of bioethanol and billions of pounds of plant-based bioproducts that are shipped around the globe.

Born out of a way to generate extra income during a time when global agriculture commodities were in oversupply, the Broin family began producing bioethanol on the family farm in rural Minnesota in the 1980s. More than thirty years of hard work, ingenuity, and ceaseless advocacy for an emerging industry has grown POET from its humble beginnings into the who we are today: a global industry leader with storied roots.

**We will continue to lead the way through research and innovation, providing sustainable solutions to world-wide energy, health and environmental issues.**

### 1987

Broins purchase first bioprocessing plant in Scotland, SD

### 1991

Business starts to expand, adding new capabilities and divisions

### 2004

POET patents BPX®, the industry's first raw starch hydrolysis biotechnology

### 2007

Name changed from Broin Companies to POET

### 2012

Launch of Voilà, POET's corn oil product

### 2017

JIVE, POET's asphalt rejuvenation and modification solution was launched

### 2019

Capacity exceeds 2 billion gallons with Marion expansion and Shelbyville greenfield site

### 2020

Expansion into hand sanitizer and purified alcohol products

### 2021

Capacity reaches 3 billion gallons with acquisition of 5<sup>th</sup> largest biofuel producer, Flint Hills Resources

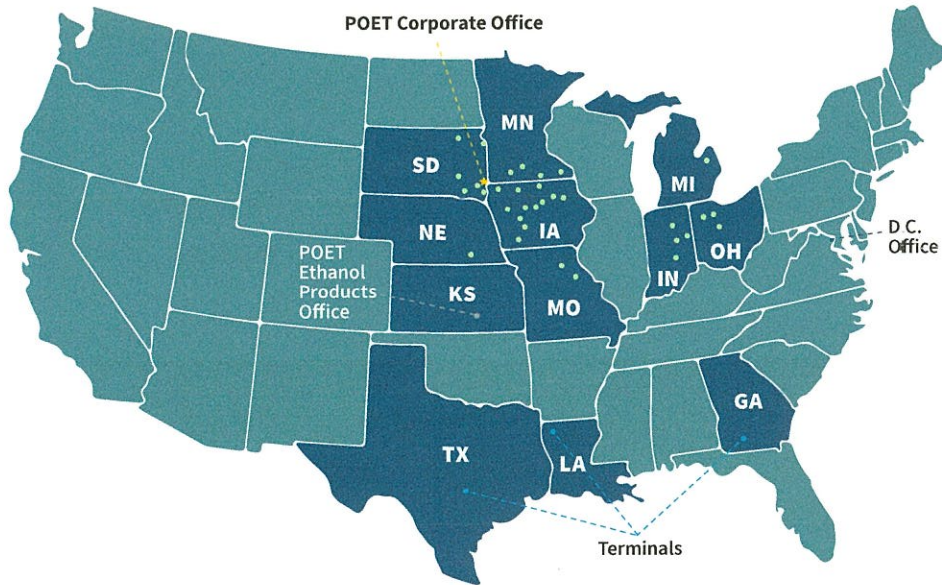
## VISION

Our vision is to live in a world with natural balance. Where we no longer take from the Earth, but rather use its enormous ability to regenerate. Where we are no longer dependent on fossil fuels, but rather rely on the power of nature and the genius of the human spirit. Where farmers are the creators, and innovators are the heroes. Where we use the resources given to us in ways we believe God intended.

## MISSION

Our mission is to be good stewards of the Earth by converting renewable resources to energy and other valuable goods as effectively as humanly possible.





POET is headquartered in **Sioux Falls, South Dakota** with **33 bioprocessing facilities** across the Midwest

#### IOWA

Arthur  
Ashton  
Coon Rapids  
Corning  
Emmetsburg  
Fairbank  
Gowrie  
Hanlontown  
Iowa Falls  
Jewell  
Menlo  
Shell Rock

#### SOUTH DAKOTA

Big Stone  
Chancellor  
Groton  
Hudson  
Mitchell  
Scotland

#### MICHIGAN

Caro

#### NEBRASKA

Fairmont

#### MINNESOTA

Bingham Lake  
Glenville  
Lake Crystal  
Preston

#### OHIO

Fostoria  
Leipsic  
Marion

#### INDIANA

Alexandria  
North Manchester  
Portland  
Shelbyville

#### MISSOURI

Ladonia  
Macon

## POET BY THE NUMBERS



40,000+  
FARMER  
SUPPLIERS



930 million  
BUSHELS OF  
CORN PURCHASED  
PER YEAR



3 billion  
gallons  
PRODUCTION  
CAPACITY



14 billion lbs  
of distillers dried grains  
PRODUCED ANNUALLY  
AND DISTRIBUTED TO  
COUNTRIES THROUGHOUT  
THE WORLD



975 million lbs  
OF CORN OIL  
PRODUCED



NEARLY  
6 million  
TONS OF CO2  
CAPTURED



13+  
UNIQUE PRODUCTS  
MADE AT POET



1500%  
GROWTH  
SINCE 2000



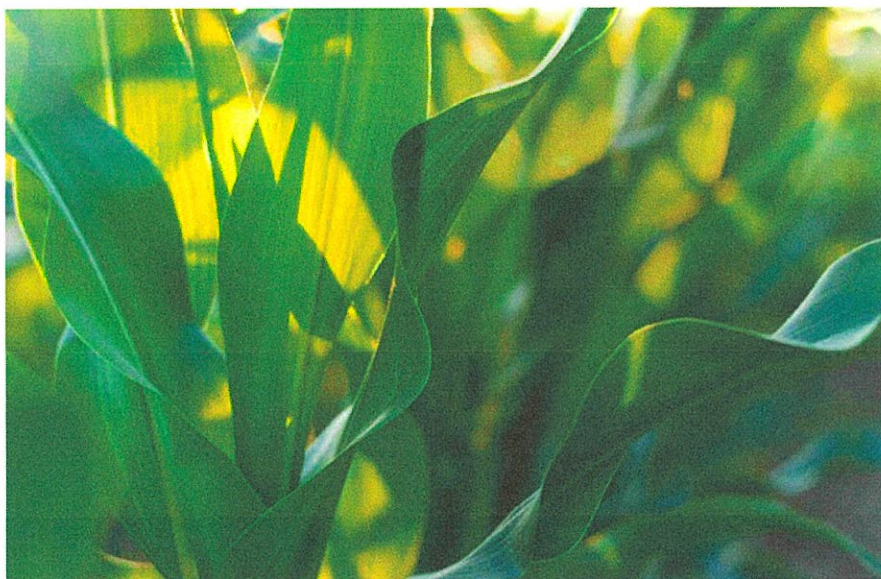
\$200 million  
AVERAGE CONTRIBUTION  
TO EACH PLANT'S  
LOCAL ECONOMY



## POET's Sustainability Journey

The word “sustainability” has certainly gained popularity in recent years, but at POET, it is not a new concept. It has been a part of our DNA since the company's earliest days. For more than three decades we have been a powerhouse in driving the development of biofuels and bioproducts, always maintaining our tradition of innovation and environmental stewardship along the way.

We are proud of our agricultural roots, and we strive to keep the spirit of the family farm at the heart of everything we do. POET was founded on the concept of value-added agriculture, or finding ways to leverage the land productively and with integrity. When CEO Jeff Broin's father, Lowell, saw his Minnesota cropland lying idle in the 1980s – and being paid by the government to keep it that way – he knew there had to be a better way to put his crops to good use. With a little creativity and common sense, he got to work.



After a few years of experimenting on the farm, the Broins purchased a defunct ethanol plant in Scotland, South Dakota in 1987. It truly was a leap of faith – they put the family farm on the line as collateral. They poured their blood, sweat, and tears into refurbishing the plant and did so on a budget, finding deals at auctions and recycling whatever they could to avoid purchasing new parts. They also leveraged their good old-fashioned farmers' ingenuity and knowledge of the industry to ensure they stayed the course, never wavering even when corn prices spiked or machinery failed.

Eventually, what began as a way to survive the ag crisis grew into a passion to change the world.

Today, just like in those early days, POET salvages the things that work and combines them with good ideas to innovate something even better. That original spirit of ingenuity and perseverance is still alive and well, and we continue to be grateful for the abundance of the Earth while striving to preserve it for our children and grandchildren.

Since 2005, POET has reduced its annual energy use by

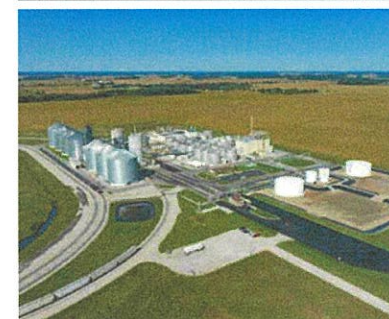
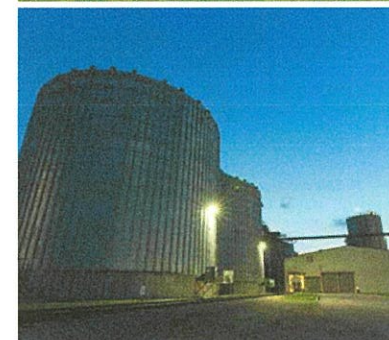
↓ 18%

Since 2005, POET increased its per bushel biofuel yield by

↑ 8%

Since 2007, POET has reduced its annual water use per gallon by

↓ 20%





## Our Progress

At POET we recognize the urgency of the climate crisis. In addition to producing several plant-based bioproducts that displace petrochemicals, we are constantly finding new opportunities to lower our overall energy use and reuse energy more efficiently in our operations. As part of those efforts, we have developed a number of sustainable technologies that are already in use.

### Waste to Energy Technology

POET's bioprocessing facility in Chancellor, SD is a prime example of waste to energy technology. The facility is powered using steam generated from biomass combustion and methane gas that is pipelined from the landfill near Sioux Falls, SD, which would otherwise be released into the atmosphere.

### Combined Heat & Power

In addition, nearly half of POET's bioprocessing facilities now utilize energy-efficient, steam-powered turbines that generate electrical energy from process steam to operate the plant. Each generator produces an average of three megawatts of electricity per facility, totaling 50 megawatts per year — enough to power 2,000 homes, or a combined total of about 40,000 across the entire POET network.

### Carbon Capture

Our energy efficient production process allows carbon dioxide to be captured for commercial use. In fact, POET is the fastest-growing renewable CO<sub>2</sub> business in the US, and more renewable CO<sub>2</sub> means that less CO<sub>2</sub> is harmfully extracted from below the ground.

### Total Water Recovery

POET's patented Total Water Recovery system filters, treats, and recycles water used in the production process. This system essentially eliminates liquid discharge from POET's network of bioprocessing facilities, except for steam and water present in bioproducts that exit the facility.

### Solar Power

As of mid-2021, the majority of POET's headquarters in Sioux Falls, SD is powered by the first POET solar farm. The 400 kW solar farm is the largest of its kind in the city and, in the summer months, will generate more power than what is needed for our office building. The additional power produced will go back to the grid to power local homes and buildings.

As we have grown, we have increasingly recognized our capacity to improve upon our processes and become even more ambitious in our actions, both inside and outside our walls. In addition to our large-scale improvements, we have implemented internal efforts to conserve waste, including recycling, paper conservation, reusable dishes and tableware, and the transition to LED light bulbs. We have also encouraged local community conservation efforts across our locations.

Most importantly is that at our core, we strive to be highly ethical and moral — to simply do the right thing. The POET team holds ourselves to a high standard of treating others with respect and dignity, which we believe serves our ultimate goal of leaving the world a better place than we found it.





## Looking to the Future

As POET looks toward what is next — and at what type of world we want to leave our children and grandchildren — we realize that there is always room to think bigger. We intend to go all in, charting a path toward carbon neutrality while bringing value to rural America, engaging team members, and strengthening our internal commitment to sustainability.

### GOALS

POET has set six goals to help guide us toward a more sustainable future for everyone.

The goals have been separated into **two pillars** — one that is focused on investing in technology and improving our overall operations, and one focused on advocating for a sustainable society.

### Public Policy

It is important to note that many of the carbon reduction pathways POET is considering will require state and federal policy support and significant capital investments.

### PILLAR 1

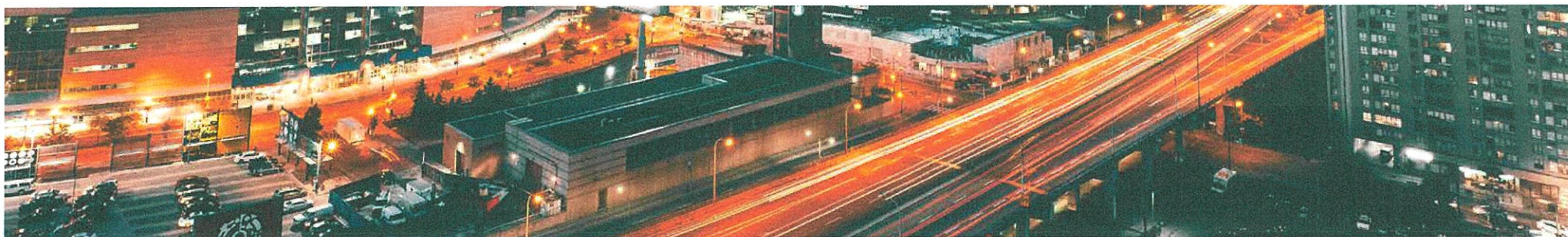
## Invest in technology focused on achieving carbon neutrality & increasing the use of plant-based products

- 1 Reduce the carbon intensity of bioethanol by 70% compared to traditional gasoline by 2030.
- 2 Continue to invest in technology to advance the development of low-carbon bioproducts that can displace more fossil-based fuel products.
- 3 Transition POET's bioprocessing facilities to carbon neutrality by 2050.

### PILLAR 2

## Advocate for a sustainable society

- 4 Continue to drive policy that supports biofuels and bioproducts.
- 5 Bolster and expand POET's Carbon Strategy Team.
- 6 Create programs and opportunities that allow our team members to give back to causes that align with our mission.





## PILLAR 1

# Invest in technology focused on achieving carbon neutrality & increasing the use of plant-based products

## Carbon Reduction Strategies

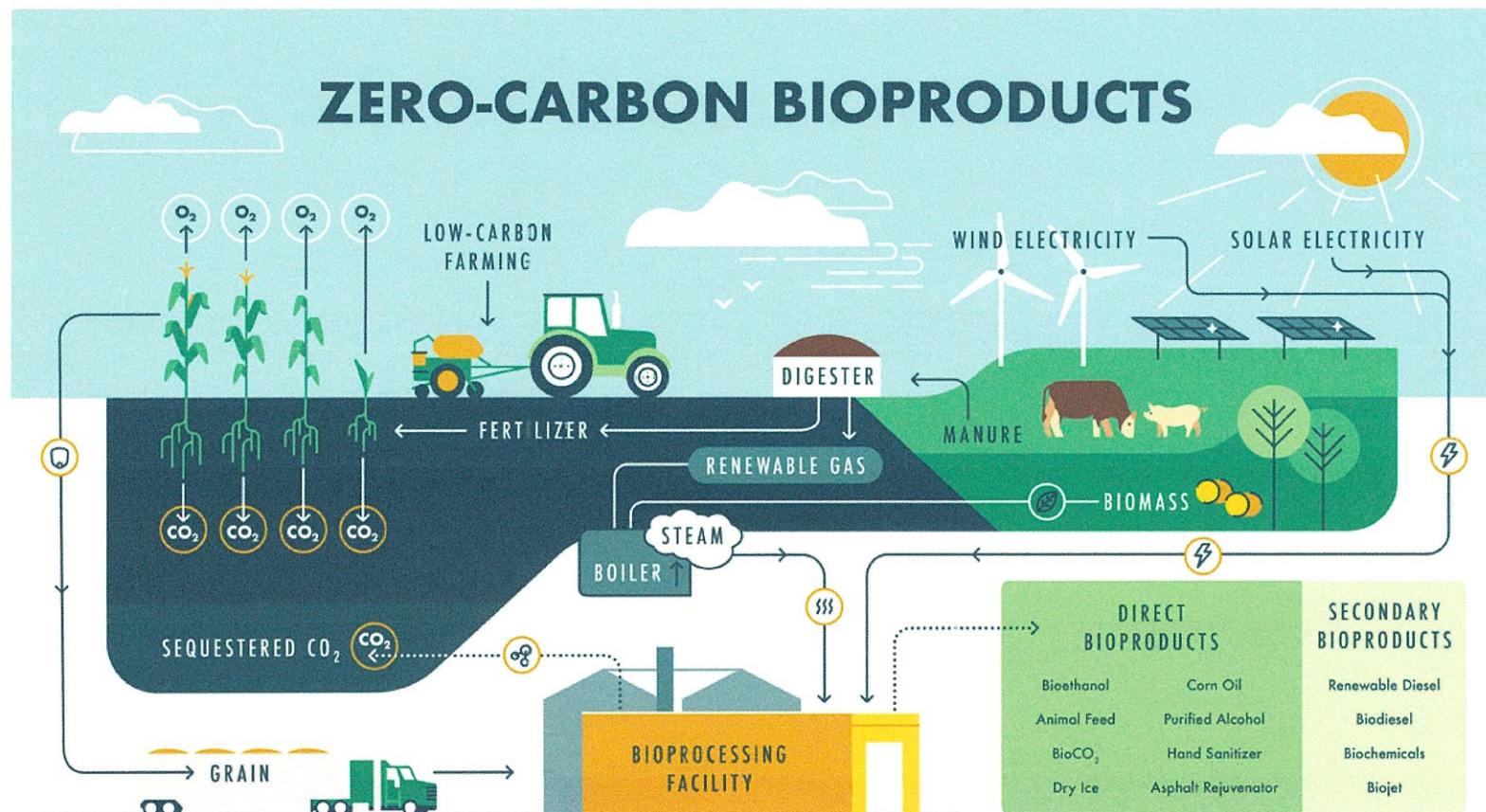
The most critical strategy for achieving our environmental goals is to capitalize on advancements in all facets of existing and emerging technology in the bioproducts sector.

## Zero-Carbon Bioproducts

The adjacent graphic illustrates many of the carbon intensity (CI) reduction strategies that POET will consider in order to achieve our carbon neutrality goals.

We believe that each of these technologies could be used to lower CI at our facilities, but in order to maximize efficiency, each location would select the technologies that are best suited to their location.

POET's ability to continually improve our processes and implement carbon reduction technologies across our network is contingent on state and federal policy. The bioproducts industry will require support from policymakers to create incentives that will drive lasting change.





The below chart represents the Life Cycle Analysis (LCA) for bioethanol and bioproducts made from corn. According to a recent peer-reviewed study by Environmental Health & Engineering (EH&E), the baseline CI score for the bioethanol industry is 51.4 gCO<sub>2</sub>e/MJ. This result is in line with Argonne National Laboratory's most recent GREET LCA model. POET's facilities score better than the industry average with an average CI score of 49.4 gCO<sub>2</sub>e/MJ.

This chart gives more detail on POET's current CI score and outlines some of the opportunities that exist to help us achieve our carbon neutrality goals. The far right column summarizes the potential CI reductions that could come from implementing each item on the list. It's important to note that many of the items below are complex and would require both policy support and significant capital investment to achieve. However, with the right policies in place, implementing a combination of just some these options at each facility could help us reach our carbon goals.

Category	Current POET Ave. CI Score (gCO <sub>2</sub> e/MJ)	Potential for Reduction in CI Score (gCO <sub>2</sub> e/MJ)
<b>Facility Operations</b>	<b>27.6</b>	
Operational Efficiencies		-8.6
Energy Inputs		-19
Carbon Capture & Sequestration		-35
<b>Agriculture</b>	<b>26</b>	
Co-Product (animal feed) credit	-12.8	
Improved Agriculture Techniques		-40
Product Transportation & Logistics	4.7	
Land Use Change	3.9	
Update Methodology		-3.9
<b>Total</b>	<b>49.4</b>	<b>-106.5</b>

Below is more detail on the categories where POET feels we can make the most impact.

#### Facility Operations

This category includes all aspects of operating bioethanol and bioproduct facilities including energy inputs and carbon emissions.

POET is always seeking increased productivity and efficiency in our bioprocessing facilities while also ensuring no compromises on safety or product quality. Some of the operational efficiencies that will contribute to the overall goal of reduced carbon include continuing to improve bioethanol yield through research and technology development and reducing electrical and natural gas inputs in the creation of biofuel.

A key area of opportunity is to increase use of renewable energy, such as solar, wind, biomass, and biogas, as well as continuing to dry less animal feed and pursue alternative on-site energy generation technologies, reducing our use of fossil fuels.

POET is also researching emerging opportunities and technologies for carbon capture and sequestration.

#### Agriculture

Agriculture is at the core of all we do, and POET has been a longtime proponent of the power of agriculture to combat climate change. We are working toward partnerships with farmers to incentivize more sustainable farming practices, such as precision technologies that reduce fertilizer inputs, decrease soil tillage, and utilize cover crops.

In September 2020, POET announced a partnership with Farmers Business Network (FBN) to boost profits for farmers while promoting sustainable agricultural practices through Gradable — a platform that matches farmers who use environmentally friendly practices with buyers who pay a premium for low-carbon corn. Gradable focuses on using proven science to measure the benefits of conservation practices used by farmers on their land.

To further support these efforts, POET, FBN and Argonne National Laboratory partnered to run a Gradable pilot to measure the actual CI in the supply chain at our facility in Chancellor, SD, which spanned 7.5 million bushels and 126,000 acres of land. The pilot was a great success not only from a grower interest and participation perspective, but it also

demonstrated that the Chancellor plant's current CI score attributable to farming was well below the national average.

The pilot also showcased a wide variability of growers' CI scores, incentivizing those who had adopted sustainable agricultural practices to continue doing so and encouraging others to consider integrating more sustainable agricultural practices. As more states adopt a low carbon fuel standard (LCFS), it will open new markets for lower CI grain, encouraging adoption of more sustainable agricultural practices.

Our relationship with FBN demonstrates our commitment to developing innovative practices that not only improve the bottom line but also advance sustainability practices.

#### Land Use

Indirect Land Use Change or Land Use Change (LUC) is a theory that suggests that the use of corn for biofuel production in the United States could lead to changes in international farming practices, which could ultimately lead to carbon emissions. This theory has been questioned since it was initially posited in 2008, and estimates of LUC impacts have dramatically decreased as more data has become available.

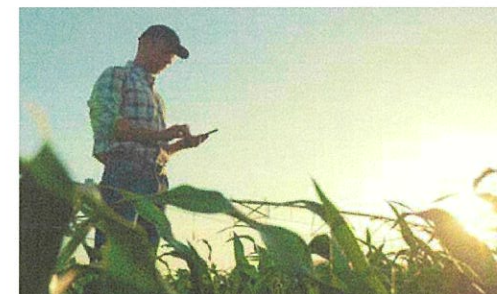
For example, in the Environmental Health & Engineering study discussed in this report, the authors estimated that LUC impacts are far less than previously believed.

Many of the reports reviewed by EH&E during the writing of their report assessed LUC at neutral (zero CI) or even net negative.

The change in score in more recent studies is due to better data inputs for LUC modeling that consider both the economic value and productivity of cropland. Previous models assumed new land would be cleared in response to an increase in the price of corn. This assumption has been proven to be inaccurate by extensive data on corn production and price over time.

Technology advancements in recent decades have led to substantial increases in corn yields and a significant increase in surplus grain across the US — without increasing the acres of farmland. Biofuels have helped to create markets for this surplus grain, which has led to positive impacts to rural economies and agriculture around the world.

POET is in the process of actively working with California Air Resources Board (CARB), Environmental Protection Agency (EPA), and other regulators to update their CI models to reflect the most recent estimates of LUC so that the true lifecycle GHG benefits of bioethanol are accurately reflected in regulatory programs.



## EH&E REPORT

In 2019, POET engaged a leading environmental consulting firm to conduct a life cycle analysis study on the carbon intensity of corn bioethanol in the United States.

[The report](#), published by the peer-reviewed Environmental Research Letters in early 2021, found that greenhouse gas emissions from corn bioethanol are 46% lower than gasoline, up from the estimated 39% done by previous modeling. The report, led by David MacIntosh, Chief Science Officer of Environmental Health & Engineering, Inc. (EH&E) and Adjunct Professor of Environmental Health at Harvard's T.H. Chan School of Public Health, and consulted by dozens of experts in academia, updates bioethanol's carbon intensity score to reflect how continuous improvements in technology and practices have driven further emissions reductions in the lifecycle of bioethanol and could lead to net-zero renewable fuel in the future.

The study outlined great potential to lower the CI score even further with increased use of renewable energy to power bioprocessing facilities, more bioproduct production, increased use of precision agriculture techniques, and carbon sequestration options.



## Products and Technology

POET is committed to continuing to invest in cutting-edge technology and the development of bioproducts that can replace petroleum products, helping society to reduce its environmental footprint while improving human health.

## Bioproducts

POET is the world's largest producer of bioethanol. We got our start in fuel-grade bioethanol more than 30 years ago and have been a leader in advancing technology and advocating for the industry ever since.

Today, although biofuels are still at the forefront of our product line, we are much more than just a fuel company. We have created a suite of bioproducts that further leverage our production process to offer clean renewable solutions in several product categories — including those that have traditionally relied on petrochemicals.

## Biofuel

### Bioethanol

Fuel-grade bioethanol is a clean-burning, renewable alternative to fossil fuel that is made from plant materials. It boosts octane, lowers GHGs, and, when blended with gasoline, enables petroleum-based fuels to meet emissions and fuel efficiency standards — all while saving consumers money at the pump.

Bioethanol is by far the most widely produced renewable fuel in the world today, with approximately 15.7 billion gallons produced in



**Bioethanol replaces the most expensive and toxic chemicals that are found in today's fuel supply, which have been proven to cause cancer, asthma, and a number of other health problems.**

Biofuels also utilize surplus grain, which helps make agriculture a profitable industry, enabling farmers to more readily invest in conservation practices.

the U.S. in 2019. Many Americans might be surprised to know they use it every day; 98% of fuel sold in the U.S. contains up to 10% bioethanol.

The majority of bioethanol in the U.S. is made from corn starch, but it can also be produced from other feedstocks like sugarcane, sorghum, wheat, barley, potatoes, and agricultural residue.

There are significant benefits to bioethanol. At POET we believe it is the best, most sustainable and economically viable liquid fuel available to meet environmental and human health goals today.

## Corn Oil

### Voilà®

POET produces a low-Cl distiller's corn oil called Voilà that is used as a feedstock for biodiesel and renewable diesel. In other words it's a co-product that makes it possible to produce biofuels as a byproduct of biofuels. Two of our 33 bioprocessing facilities produce a more clarified corn oil product called Voilà Premier, which is an ideal feedstock for many renewable diesel refineries as it eliminates the pretreatment step.

### JIVE™

POET's patented BPX process enables us to make JIVE, a safer, healthier, more cost-effective asphalt rejuvenator, modifier, and shingle coating additive. JIVE is an extremely effective bio-based alternative to its petroleum-based counterparts.

## Renewable CO2



POET has been capturing and selling renewable CO2 — which is used in everything from carbonated beverages and beer to flash freezing for food to fire suppressor systems and welding gas — since 1988. Our CO2 is derived from the bioethanol process, which means it is 100% renewable; in fact, POET is now one of the fastest-growing



renewable CO2 distributors in the U.S., with over a dozen different manufacturing facilities across the Midwest.

### Dry Ice

We have also been able to turn our CC2 into dry ice pellets at POET Bioprocessing — Macon, helping to support the increased demand of dry ice that is critical to COVID-19 vaccine distribution. POET Pure Dry Ice is also used for a number of food, medical, and e-shipping applications.

## Purified Alcohol

### POET Pure Grain Neutral Spirits (GNS)

Our food-grade alcohol is distilled six times to meet the highest standards for purity, including the FDA's Good Manufacturing Practice (GMP) label standards and the Global Food Safety Initiative's Safe Quality Food (SQF) Program standards, and it also adheres to kosher guidelines.

### POET Pure Ethyl Alcohol (USP)

In response to the COVID-19 pandemic, POET engineers worked

around the clock to create a higher purity alcohol than what is required for fuel. POET's newest bioproduct is plant-based purified alcohol which replaces synthetic and petroleum-based alcohols in cleaning and sanitizing products as well as cosmetics, personal care items and pharmaceuticals.

During the pandemic, we used our purified alcohol to produce our own liquid and gel hand sanitizer. POET has donated thousands of gallons of sanitizer to nonprofits, hospitals, schools, and first responders.

## Animal Feed

### Dakota Gold®

POET's longest-standing coproduct division is animal nutrition. Distillers grains like our Dakota Gold are a nutrient-rich coproduct of the bioethanol production process that offer a high-quality, low-cost feed ingredient for livestock.

When starch is extracted from a corn kernel for bioethanol production at POET facilities, the remaining protein, oil, and nutrients are converted into animal feed and other bioproducts — ensuring that no part of the corn kernel goes to waste. As a result, the bioethanol industry increases the nutrition available to the world.

Today POET has many different feed products available. Whether high-fiber, high-protein, or high-oil, we have the ability to create different combinations of nutrition formats based on customers' needs.





## Selection of POET's animal feed products

Today, POET has many different feed products available to address the world's protein shortage, including a new higher protein product called NexPro®.

Additionally, due to POET's patented BPX process which eliminates the cooking step in bioethanol production, studies show that POET's feed products are more digestible, reducing methane emissions from livestock.

### Distillers Grains

#### Dakota Gold®

Dakota Gold is POET's branded Distillers Dried Grains with Solubles (DDGS) product that is known for consistency and quality. DDGS are a nutrient-rich, co-product of the bioethanol process that offer a quality, low-cost alternative feed ingredient. Additionally, they're rich in protein, minerals and fiber.

#### NexPro™

NexPro is a next-generation protein ingredient produced at two POET bioprocessing facilities. As a 50 percent protein product, NexPro is a great choice for a multitude of animal feeds — from poultry to swine, aquaculture to pet food.

#### ProPellet™

ProPellet is made up of 100% Dakota Gold DDGS and boasts the same nutritional benefits and consistency, but appears in a more dense, pelleted form that reduces waste when feeding in pastures where wind and rain can cause product shrink.

#### Wet Distillers Grain

POET Dakota Gold Distillers Wet Grains feature the same benefits our dried product but require less energy to produce — lowering the carbon intensity of the feed.



### Syrup, Solubles & Corn Oil

#### Syrup

Dakota Gold Corn Condensed Distillers Solubles is an economical liquid feed ingredient predominantly used in ruminant diets.

#### Distillers Corn Oil

Distillers Corn Oil is used in animal feed rations to add a high-quality source of energy to the diet.



## Technology & Innovation

At POET, we believe it is our duty to provide sustainable solutions for the planet and all those who call it home. That belief extends to our research and product development process, which always starts with sustainability in mind. With every new offering, our goal is to create renewable products that have the smallest possible environmental footprint, minimizing our overall carbon intensity.

Most of POET's innovations begin at the R&D facility in Sioux Falls, where testing and innovating are highly encouraged. As new processes and potential products go through lab-scale testing and demonstrate the ability to be scaled for commercialization, POET researchers can then test them at bench and pilot scales in our state-of-the-art facilities to see what new solutions are feasible.

One of our breakthroughs in efficiency is BPX, our patented raw-starch hydrolysis, which removes the energy-intensive cooking process from our bioethanol production process.

**BPX decreases energy and water use up to**

**15%**

**in comparison with the conventional process of making bioethanol.**

BPX is also the foundational technology that enables POET to produce and enhance our suite of bioproducts.

**By adding BPX and other technologies to POET production facilities, we have been able to decrease the GHG intensity of bioethanol production by**

**10%**

**since 2005.**

Because the spirit of ceaseless innovation POET was founded on is alive and well today, we are never satisfied with "good enough." Our product and process development team focuses on the continuous improvement of bioethanol and other bio-based products.

## PILLAR 2

## Advocate for a sustainable society



### Team Members

Advocating for our team members starts with equipping them with what they need in order to bring their best to work each day. At POET, we believe in taking a multifaceted approach to team member wellness. This includes not only providing them with excellent health benefits and a holistic wellness program, but also creating opportunities for team members to contribute to a more sustainable future.

To that end, we will continue to focus our efforts on creating more programs that enable our team to identify issues they feel passionate about, act on them, and ultimately enhance our communities. More details about opportunities we provide for our team members can be found in the upcoming Creating Community section.

### Leadership & Public Policy

#### Carbon Strategy Team

While we consider sustainability to be at the core of what each and every one of our team members do each day, to help ensure that our sustainability commitments continue to move forward, in 2021 we established a carbon strategy team at POET composed of experts and leaders from across the company. Focused leadership will be necessary to meet our goals.

#### Improved Government Policies

No one organization, company or even nation can reverse the effects of climate change on their own. It will take a concerted effort. The role of government policy will be critical in advancing many of the necessary actions needed for the transition to a sustainable economy - including

POET's carbon neutrality goals. The transition to net-zero emissions will require sound public policy that appropriately incentivizes carbon decisions.

Developing and implementing federal and state policies that accurately reflect the scientific merits of biofuels for reducing greenhouse gas emissions and improving air quality and public health will also be key. We will continue to advocate for these policies.





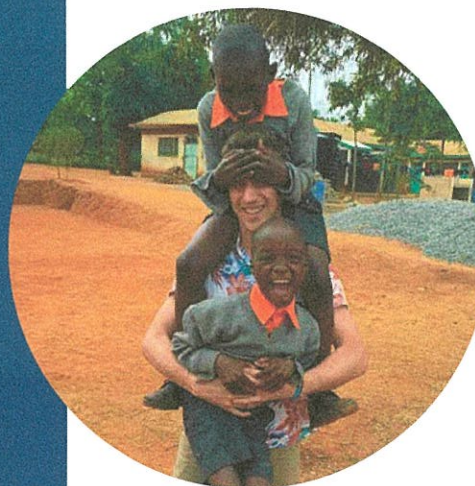


## Aligning with Global Initiatives

While our company's roots are in the Midwest, we are keenly aware of the impact our actions can have on a global scale. POET supports various worldwide efforts to advance a more sustainable society, including the **Paris Climate Agreement** and the **United Nations' Sustainable Development Goals**.

Through Seeds of Change, POET's international nonprofit founded by Jeff and Tammie Broin and family, we support communities all over the world by transforming lives through the power of education and the miracle of agriculture.

As we move along our sustainability journey, we hope to expand to other parts of the world.



### Paris Climate Agreement

In line with its ambition to combat climate change, POET supports the goals of the Paris Agreement to limit global warming to below 2 degrees Celsius, compared to pre-industrial levels.

### United Nations' Sustainable Development Goals

POET's business model is oriented toward achieving a more equitable, healthier world for all. As such we have identified five of the 17 UN Sustainable Development Goals (SDGs) where we feel POET can best affect some level of change and positive impact.



POET team members and their families have the opportunity to join an annual service trip to Kenya through Seeds of Change





## Creating Community

With more than 2,200 team members across multiple locations, POET is dedicated to hiring, training and retaining a top-notch team. POET's goal is to foster a company culture that makes POET a great place to work and advance a fulfilling career.

The company deeply cares for all of its team members. As a result, POET is committed to creating a work environment in which all team members treat each other with respect and dignity, where team members feel empowered to make suggestions about their work and the company's method of doing business, where all team members receive the support they need to succeed and develop additional skills, and where all team members value each other's cultural heritages, unique talents, and contributions to the company.

### Our People

“ POET took a chance on me. I was fresh out of college with no background in or knowledge of agriculture, but my managers invested in me and helped me develop my knowledge. Fast forward 8.5 years and I have held many different positions and have had the opportunity to become a manager.”



**Marie Moran**  
Merchandising Manager  
Sioux Falls, SD

“ What I enjoy most about POET is each day at a bioprocessing facility presents new and unique challenges; there is no cookie cutter day. We are a team of humble problem-solvers that rely on each other's specific strengths and experiences to both create value and innovation as well as resolve imperfections within the plant.”



**Ben Arentson**  
General Manager  
POET Bioprocessing – Hanlontown, IA

“ I've been on an amazing journey with POET for 16 years. I've been given the opportunity to increase my capacity through education, observation and association within the support of the management team. Knowing that I am contributing to keeping our drivers safe and compliant with FMCSA and DOT Regulations is worth every minute in the workplace.”



**Denise Enlow**  
Safety and Compliance Coordinator  
Wichita, KS

“ I love POET's dynamic, entrepreneurial, and innovative nature. We don't sit still for long on whatever the matter may be and this demonstrates real leadership in the industry and within the business. I'm grateful to work for an employer with a mission and vision to make the world a better place and improve the lives of those around us, and that never settles, but always challenges.”



**Laura McAreavey**  
Director of Finance and Procurement  
Sioux Falls, SD

“ I've gotten to know many of my colleagues closely over the years; POET is like my 2nd family.”



**Erick Hoffman**  
Data System Analyst  
Sioux Falls, SD

“ [My favorite part of POET is] my co-workers. We learn a lot from each other and we laugh together. They make coming to work fun.”



**Casey Ottmar**  
Mechanical Engineering Designer III  
Sioux Falls, SD

“ I love working for a company that helps save the environment, and I really like my team. I never feel like, 'Oh, it's Monday. I don't want to go to work.' It's always, 'It's Monday, and I get to go to work and see my friends.’”



**Tapasway Muppaneni**  
Research Scientist II  
Sioux Falls, SD

“ [To me, POET means] to strive to be better every day. We want to be better in safety, for the environment, at making our product, at running the company, developing our team members, and being neighbors within our communities. That type of leadership mission and goal makes me extremely humbled to be part of the movement.”



**Emily Boynton**  
General Manager  
POET Bioprocessing – Caro, MI

“ At POET, opportunities and fellowship can be found everywhere.”

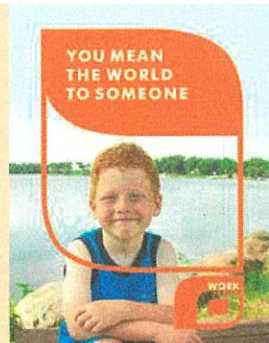
**Dominic Boyer**  
Operations Engineer  
Sioux Falls, SD





POET offers a competitive Total Rewards package that allows employees to select benefit coverages that best fit their individual needs.

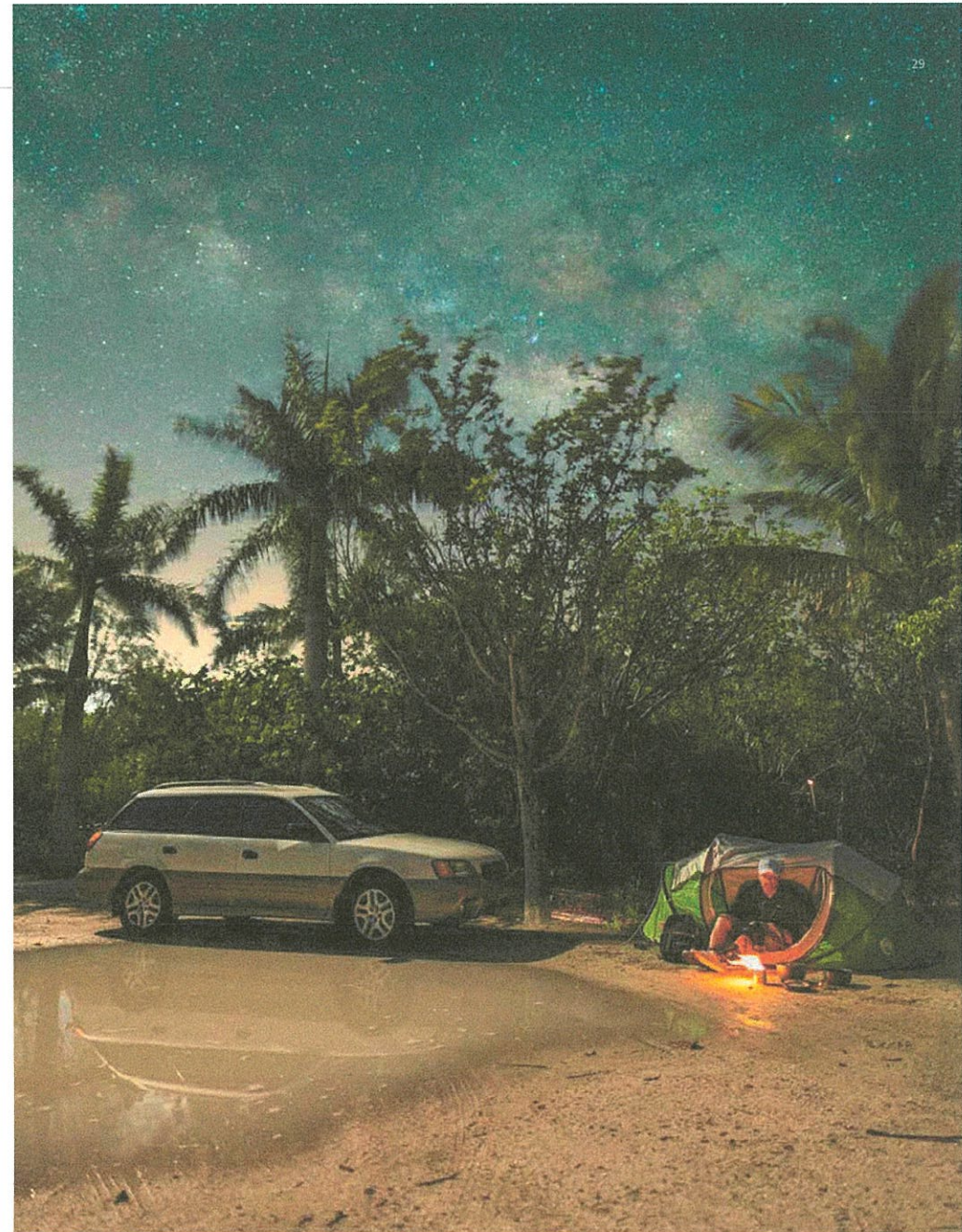
HEALTH & WELLNESS	BEYOND THE BASICS	PERKS & GROWTH
<ul style="list-style-type: none"> <li>Health Plans:               <ul style="list-style-type: none"> <li>Health Savings Account</li> <li>Flexible Spending Accounts: Health + Dependent Care</li> </ul> </li> <li>Dental Plans</li> <li>Vision Plans</li> <li>Onsite Fitness Center or Gym Member Reimbursement</li> <li>Holistic Resources</li> </ul>	<ul style="list-style-type: none"> <li>401(k) Plan with Company Match</li> <li>Profit Sharing</li> <li>Paid Time Off</li> <li>Military Paid Time Off</li> <li>Paid Holidays</li> <li>Tobacco Free Workplace</li> <li>Family Leave</li> <li>Income Protection Plans:               <ul style="list-style-type: none"> <li>Short/Long Term Disability</li> <li>Company Paid Life Insurance</li> <li>Supplemental Life Insurance</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Tuition Reimbursement</li> <li>Lunch &amp; Learns</li> <li>Industry Related Seminars</li> <li>Professional Seminars</li> <li>Mentorship Program</li> <li>Nursing Mother's Room(s)</li> <li>Team Member Assistance Program</li> <li>Community Partnership(s)</li> <li>Auto &amp; Home Insurance Discounts</li> </ul>



### You Mean the World to Someone

Part of POET's role as a responsible employer is prioritizing the importance of workplace safety. We continually educate about safety in the workplace and have significantly reduced lost time accidents over the past decade.

Starting in 2016, we created a safety campaign featuring actual POET team members and their families. Today we still promote this behavior-based safety program — called **"Work to Live"** to give team members a personal reminder about why it is so important to make good decisions at work and return home safely each day.





## Investing in Communities at Home and Around the World

A key part of our mission to leave the world better than we found it involves giving back – both in the communities that we call home and communities all over the world.

This is largely demonstrated by POET's employee giving and philanthropy program, **POET Gives Back**, as well as our international nonprofit foundation, **Seeds of Change**.

### POET Gives Back

#### Mission

At POET, leading with a servant's heart is embedded in our culture. We strive to live out this mission beyond the workplace to leave a positive impact on the world around us.

Through POET Gives Back, team members have the opportunity to unite the calling to be good stewards of the Earth with the passion to love their neighbors. The goal is to create lasting impact by spurring community development, cultivating individual growth, and serving the greatest needs of others.

#### Pillars

##### The Earth

POET aspires to create a world with natural balance, where people no longer take from the planet, but rather utilize its enormous ability to

regenerate. That's why POET uses the sun, the soil, and the seed to produce clean, renewable biofuels and bioproducts. POET partners with organizations who share their mission to preserve and improve the environment.

#### Agriculture

Since the beginning, POET has shared a fundamental connection with farmers. POET and farmers share a vision for a future in which we rely on the power of nature and the genius of the human spirit to use natural resources in ways we believe God intended. POET supports initiatives that promote and improve sustainable agricultural practices.

#### The Next Generation

POET believes that every child deserves to be nurtured and protected and that – given the right opportunities and a little encouragement – each young person has the ability to achieve great things. POET strives to cultivate creativity, confidence, and compassion in the next generation by providing support for the youth in our communities.



#### Goal

Through our giving back programs, POET hopes to unite monetary gifts to our communities with team member action, engagement, and volunteerism.

#### Community Garden

POET offers a community garden space at our corporate office for our team members to use to grow vegetables and fruits. Team members and their families care for their garden plots and enjoy fresh produce all summer.

Each year, thousands of pounds of produce is donated to various community food banks and charitable organizations.

### Never Satisfied Scholarship Program

At POET, we're never satisfied with the status quo. There's no such thing as "good enough." We want to support the ambitions of young people who look at their goals with the same mentality.

POET's annual Never Satisfied scholarship program awards scholarships to students enrolled in any two- or four-year post-secondary school, regardless of major or GPA. Never Satisfied scholars receive up to \$5,000 each, as well as the opportunity have a hands-on learning experience with POET team members in their fields of interest.

To date, POET has received applications from thousands of students across all 50 states. We have awarded 47 scholarships to students in a wide range of degree programs – from engineering to agriculture to film to public policy to pre-med and more – at several universities across the country.

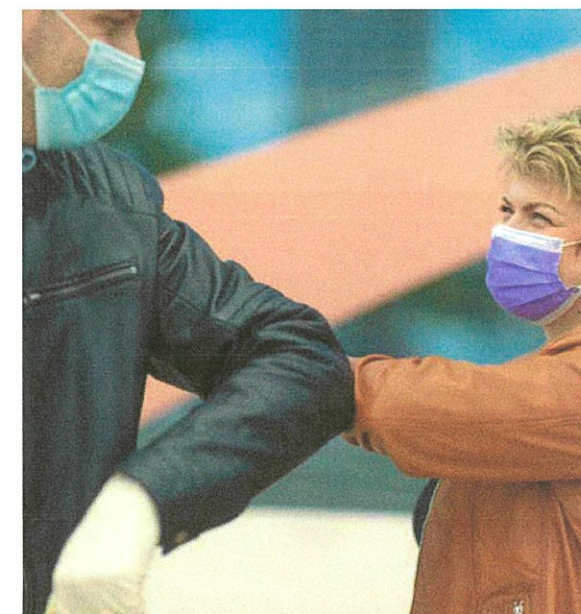
#### Meeting Needs During COVID-19

In response to the COVID-19 pandemic, the research and operations teams at POET pivoted production to create an all-natural, bioethanol-based sanitizer at a time when there was a severe worldwide shortage. As a result, POET has donated thousands of gallons of sanitizer, produced at POET Bioprocessing – Chancellor, since the onset of the pandemic. Donations have gone to numerous cities, nursing homes, schools, assisted living facilities, relief organizations, first responders, and hospitals across the country.

Never Satisfied Scholars receive up to

**\$5,000**

and have the opportunity to experience a hands-on learning opportunity with POET professionals in their fields of interest.





# Seeds of Change

In 2012, the Broin family traveled to Kenya for what would ultimately become a life-changing service trip. Their group was assigned to a construction project: a simple remodel of the three small buildings that comprised **Kakuswi Special School for the Deaf**, located in the small village of Tawa.

Tawa is located in a rural area where farming is the primary occupation. During the course of the trip, Jeff observed that the quality of crops was dismal at best. Most farmers barely grew enough to feed their families, let alone make a profit. He believed that, with some simple changes, the overall state of agriculture in the area had a lot of room for improvement. The family also fell in love with the students at Kakuswi and lifelong friendships they made with the locals – and they knew they would be back.

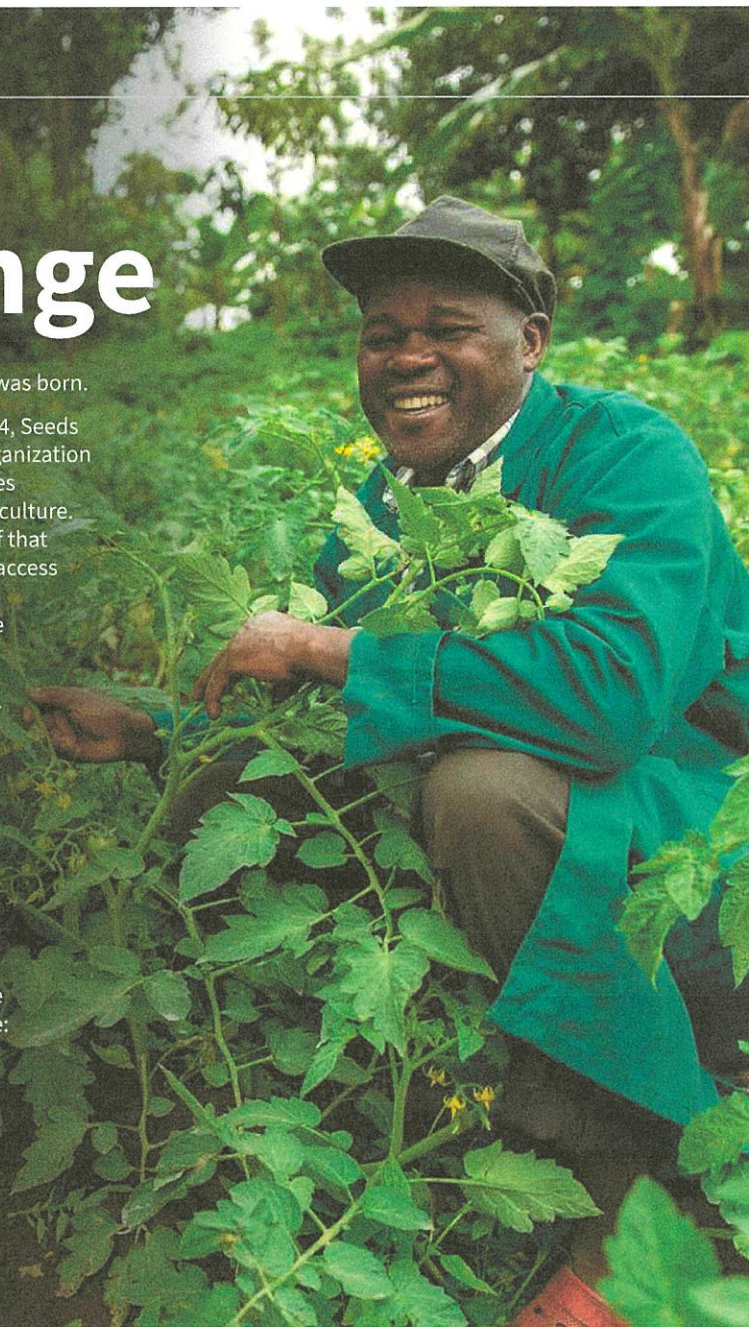
Jeff decided the experience he had was something he wanted to share with POET team members and created an opportunity for them to travel to Kenya the following year. At the same time, connections were being made with partners that could assist in agriculture reform in Africa. Eventually the projects warranted an entity of their

own, and Seeds of Change was born.

Formally established in 2014, Seeds of Change is a nonprofit organization that strives to transform lives through education and agriculture. It was founded on the belief that every individual is entitled access to basic human needs like quality education, a reliable food supply, and a healthy environment. This belief has stemmed into three key program areas that focus on improving livelihoods while generating economic opportunities that allow individuals to pave their own paths to success.

These three projects all intend to create sustainable models for affecting change:

- 1 **Mission Hope**
- 2 **Mission Grow**
- 3 **Mission Thrive**



**Timothy Mukilya, headmaster of Kakuswi Special School for the Deaf, describes the impact of Seeds of Change on his school in Kenya:**

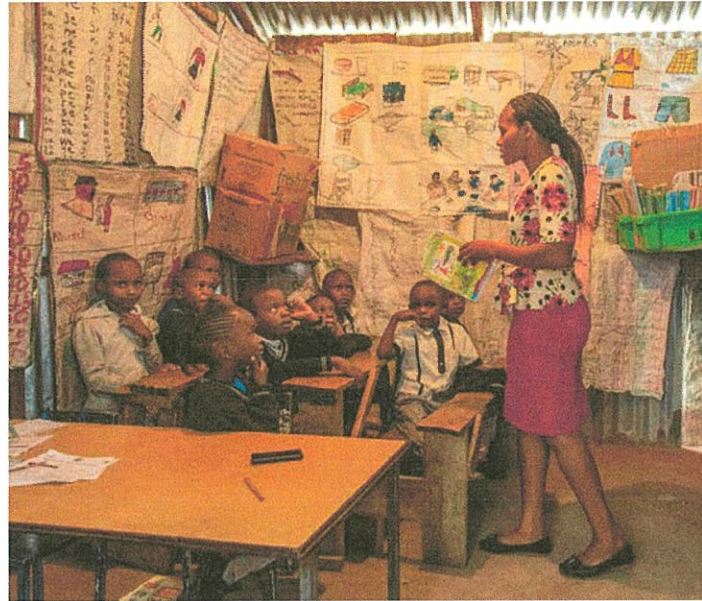
“When the school was starting as a day school, the needs were very basic. We needed classrooms, teachers, textbooks, and school uniforms for students. After becoming a boarding school, our needs expanded to include dormitories, electricity, furniture and other equipment. We also needed food, water, bedding, caretakers for the students, as well as additional financial support.

The impact of Seeds of Change on Kakuswi Special School for the Deaf can't go unnoticed. There have been tremendous changes and everybody can attest to the vast improvements that have taken place, including the dormitory foundation for the boys' dorm, the dining hall, food store and kitchen, staff quarters for teachers, and employment of other staff. Additionally, the school administration and parents are very grateful for the contributions of Seeds of Change.

Over the next five years, I hope to develop a school that will fully nurture and develop the potential of deaf learners in Kakuswi and serve as a productive and beneficial institution in the region. I also hope to increase school enrollment through awareness and consistent advocacy for the empowerment and education for the deaf population.”



## Seeds of Change Areas of Impact



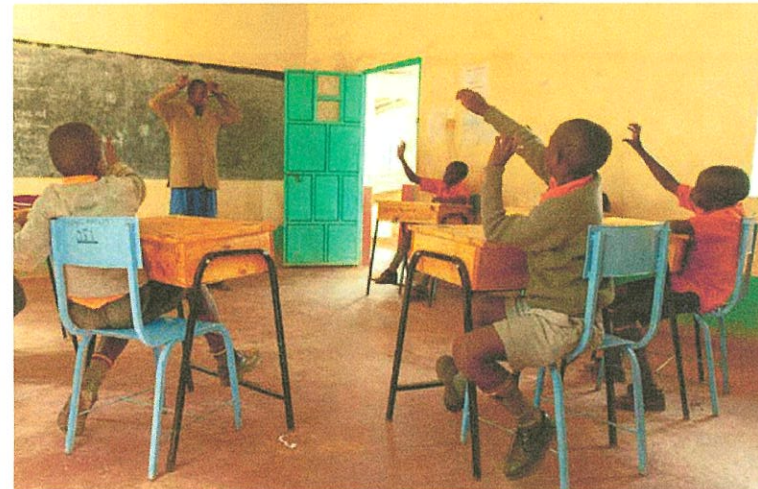
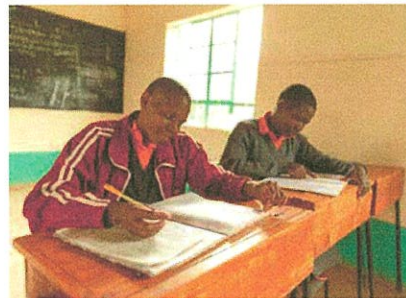
Today, with the support of Seeds of Change and others, Kakuswi Special School for the Deaf has grown from three small buildings where 24 students learned, ate, played, and slept (sometimes two or three to a single bed) to a full campus that houses more than 70 full-time students.

## Mission Hope

### Youth & Education

Mission Hope's goal is to nourish the souls, minds, and bodies of some of the world's most vulnerable youth by providing care, encouragement, and quality education.

Through this project, Seeds of Change maintains a strong relationship with Kakuswi in addition to providing full support to nearly 300 young women, from high school through university, and providing funds to feed hundreds of primary school students in Nairobi. Mission Hope has also branched into Uganda; the organization has aided in the construction of two schools, with three more underway in the next three years.



Seeds of Change follows the trajectory of these students, ensuring they are successful even after they move on to the next step in their educational journey.



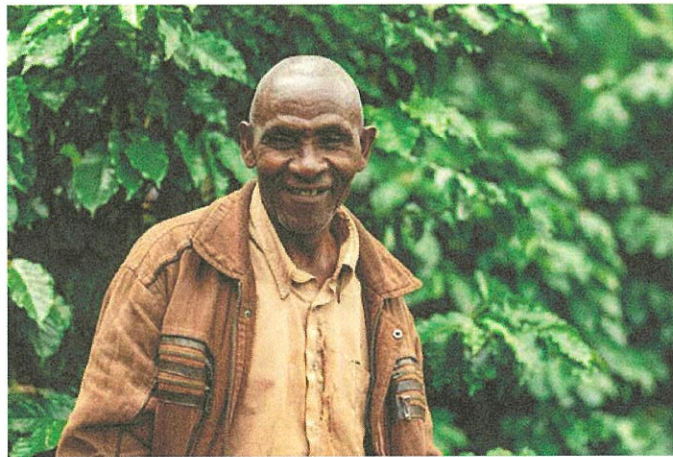
## Mission Grow

### Agriculture & Food Security

Mission Grow was created to use what God provided — the sun, the soil, and the seed — to teach viable agricultural practices that enable farmers around the world to obtain food security and improved livelihoods for their families while building up their communities.

Seeds of Change partners with boots-on-the-ground partners in Africa to support farmers with the tools and resources they need to transform their farming operations. The organization is working on translating the program to be replicated in other countries, and it is currently succeeding in Kenya and Uganda.

Mission Grow utilizes “village based advisors,” or VBAs. These are local farmers elected by their communities to be the go-to sources for improved farming practices.



To date, Seeds of Change has reached

**382,000**

farmers and, with an average of six people per farm, has impacted

**2,200,000**

individuals in Kenya alone.



# Mission Thrive

## Human Health & Environment

Mission Thrive operates in order to improve human health and living conditions by promoting sustainable habits, creating access to clean air and water, and providing practical healthcare.

One of the main aspects of this project involves the distribution of clean, bioethanol-powered cookstoves to eliminate indoor air pollution, as more than 3 billion people worldwide still cook over open flames powered by hard fuels like charcoal and wood. This causes respiratory damage, leading to more annual deaths than malaria, typhoid, and AIDS combined. Each clean cookstove can offset 4 tons of carbon each year.

Additionally, through Mission Thrive, hundreds of thousands of lives have been impacted through wellness programs, clinics, and water wells in Madagascar, Nigeria, and South Sudan, with more projects on the horizon.



Mission Thrive has worked with partners to bring critical resources—like clean water and medical clinics—to rural areas in Nigeria, Madagascar, and South Sudan that would otherwise be deprived of such necessities.

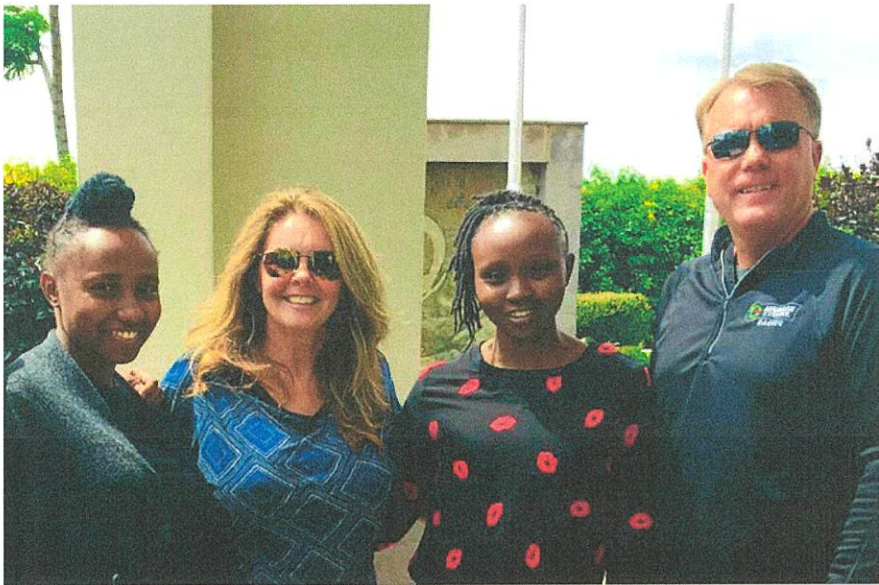


In early 2021, Seeds of Change launched a bioethanol cookstove pilot program in Mozambique. Once families make the initial stove purchase — which is made affordable by Seeds of Change — they experience many economic, environmental, and health benefits compared to traditional cooking methods.



Seeds of Change believes in the power of partnership – that everyone can achieve much more by working together toward a common goal – and frequently collaborates with other organizations to complete meaningful projects.

Through Seeds of Change, POET also gives key stakeholders, including team members, vendors, and farmers, the opportunity to get hands-on engagement through annual service trips and fundraising events.



### Seeds of Change: Leaving Handprints on Our Hearts

Board members Jeff and Brenda Pinkerman share a special bond with their “Kenyan daughters.”

During a Seeds of Change service trip to Kenya through Mission Hope in 2016, Jeff Pinkerman, CFO for POET, his wife, Brenda, and their son, Ben, have gotten to know two young women who attended an all-girls school supported by Seeds of Change – two sisters named Mary and Irene.

Brenda found an immediate connection with Mary during a crafting activity they did together involving tracing handprints and cutting them out. During this interaction, Brenda learned about Mary’s background and delayed education because of the loss of her parents. As a result, Mary experienced instability while growing up and was excited to find a school sponsored by Seeds of Change.



The following year, the Pinkermans had learned that Mary’s family home had been set on fire by hostile relatives, attempting to seize the property left to Mary and Irene. The girls felt hopeless, and after learning about this difficult year, Jeff and his family committed to helping Mary and Irene.

Irene had graduated from university with an Engineering Degree, but was not able to find a job and had no funds to continue her studies. The prospects for employment in Kenya are not particularly good for anyone, but especially a young woman without any connections. “Together we decided she would go back to her parents’ property to rebuild her home and start a farming operation,” said Jeff.

Eventually, with the help of Mission Grow – Seeds of Change’s agricultural initiative – Irene was educated in effective farming practices, which are critical for the operation to survive the area’s extreme climate.

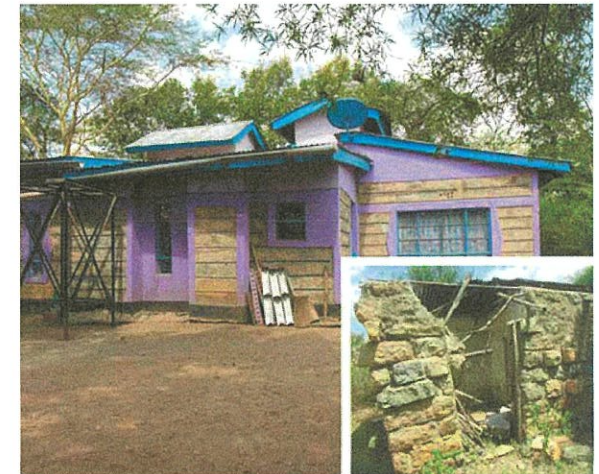
By using water conservation techniques and planting drought-resistant seeds, Irene was able to plant Chinese cabbage, pigeon peas, corn, beans and cowpeas. She also built a chicken coop, dug a deeper well and put in water tanks to capture and store rainwater. Irene established a successful farming operation on the land left to her and Mary by their parents. The operation is doing so well that she has hosted

several farm days on her property to educate local farmers about improved techniques.

After two years of establishing the farming operation, Irene has returned to University to pursue her master’s degree in Engineering. Mary is also enrolled in a university program through Mission Hope to study social work, where she has flourished. “She is a mentor and a leader at her university. She’s looking people in the eye and she has confidence and true hope,” said Brenda. “Wherever she ends up she will have the opportunity to help a lot of people. I really think she has the heart for it.”

**“She is a mentor and a leader at her university. She’s looking people in the eye and she has confidence and true hope.”**

For the full story, Leaving Handprints on Our Hearts, visit [this edition of Vital](#), POET’s quarterly news and media resource.





## Operating Responsibly

POET is committed to operating responsibly by adhering to state and federal laws and following our own conscience. As a company POET has high standards for honesty, integrity and fairness for everyone in the value chain, including employees, partners and suppliers.

### Advancing Public Policy

Through research, advocacy and ongoing dialogue with key stakeholders, POET works to advance public policy that expands opportunities for bioethanol and supports its adoption in Washington D.C. and in states across the country. Part of that includes increasing the volume of bioethanol in the fuel supply. Currently, E10 (referring to fuel that contains 10% bioethanol) makes up 98% of the nation's fuel supply, and E15 (15% bioethanol) is being more widely adopted.

Our political action committee — POET PAC — operates on the principle that bioproducts are a bipartisan issue. We support candidates on both sides of the aisle who believe in pursuing the production of clean, renewable alternatives to fossil fuels and are committed to being champions for America's biofuel and agricultural industries.

### Political Activities

POET contributes to dialogue

and decision-making on public policies affecting the company, our employees and operations.

### Ethical and Compliant Conduct

POET has established corporate policies that ensure strong and responsible corporate governance practices.

### Supplier Code of Conduct

The Supplier Code of Conduct Policy states that we will not establish or maintain a business relationship with a supplier if we believe that its practices violate local laws or basic international principles relating to human rights, anti-corruption, bribery, labor standards or environmental protection. We expect suppliers, and their suppliers, to adhere to environmental and social responsibility principles that are similar to those valued by POET.

### Complying with Laws and Regulations

All POET activities and business are to be conducted in compliance with all applicable laws and regulations. We expect our leaders and team members to conduct business in accordance with the letter, spirit, and intent of all relevant laws and to refrain from any illegal, dishonest, or unethical conduct. Any questions,

concerns, or known or suspected violations of applicable law should be promptly reported.

POET is committed to employing United States citizens and non-citizens who are authorized to work in the United States, and does not unlawfully discriminate on the basis of citizenship or national origin. In compliance with the requirements of the Immigration Reform and Control Act, as a condition of employment, all team members must complete the Employment Verification Form (I-9) and any other applicable documentation requirements.

### Environmental Stewardship and Climate Resilience

Climate change is a tremendous challenge that impacts the planet and all forms of life. To ensure POET is being a responsible corporate citizen, we are committed to measuring, transparently reporting, and reducing the carbon footprint of our operations.

### Human Rights

POET acknowledges and respects the fundamental principles contained in the Universal Declaration of Human Rights. Our core values and culture reflect a commitment to ethical business practices and good corporate citizenship, and our policies and practices require us to conduct business with uncompromising

integrity and to promote human rights within the company's sphere of influence. POET condemns all forms of exploitation of children, will not recruit child labor and supports the elimination of exploitive child labor.

### Equal Employment Opportunity Policy

We are committed to providing a work environment that is free from discrimination.

POET provides equal opportunity for all team members and applicants without regard to

race, color, religion, sex (including pregnancy, childbirth, and related medical conditions), national origin, age, disability, marital status, genetic information, sexual orientation, gender identity, gender expression, military status, veteran status, or any other legally protected status. All employment decisions are made based on qualifications, ability, merit and/or legitimate factors. This policy applies to all aspects of the employment relationship, including but not limited to recruiting, hiring, compensation, benefits, working conditions, promotions, and dismissal.

### Anti-Discrimination Policy

POET is committed to employing United States citizens and non-citizens who are authorized to work in the United States, and we do not discriminate on the basis of citizenship or national origin.

### Anti-Corruption and Anti-Bribery

POET values our reputation for ethical behavior, honesty and fair dealing.





## About this Report

Published in September 2021, this report represents POET's first formal sustainability communication.

For questions about POET's sustainability program, you can contact [sustainability@poet.com](mailto:sustainability@poet.com).







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Tyson Foods, Inc.  
Missouri State Profile



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**Missouri Facilities**

Concordia	Prepared Foods
Dexter	Poultry Processing, Renewable Products
Grayridge	Grain Elevators - LGS
Monett	Poultry Processing, Renewable Products
Noel	Poultry Processing
Sedalia	Poultry Processing, Renewable Products
St. Joseph	Prepared Foods

Jobs located in Buchanan, Lawrence, Stoddard, Lafayette, Barry, Montgomery, McDonald and Pettis counties

**Statewide**

Team Members	5,620
Poultry Growers	430
Cattle Suppliers	145
Hog Suppliers	69

**Economic Footprint**

Wages	\$ 233.9 million
Property / S&U Tax	\$ 2.4 million
Utilities*	\$ 38.4 million
Poultry Grower Pay	\$ 80.6 million
Cattle Supplier Pay	\$ 56 million
Hog Supplier Pay	\$ 4.7 million
Grain Purchases#	\$ 315.8 million
Cooking Oils	\$ 16.1 million
Diesel	\$ 8 million
Grants & Scholarships	\$ 179,500
Food Donations	547,000 lbs

**Statewide Impact**      **\$ 756 million**

\*Gas, water, sewer & electric. #May not include all delivered grain.





# Missouri Poultry 2018



601 Business Loop 70 West, Suite 213E - Columbia, MO 65203  
573-876-0950 - [www.nass.usda.gov](http://www.nass.usda.gov)

July 15, 2019

Contact: Robert Garino

## Missouri Turkey Production

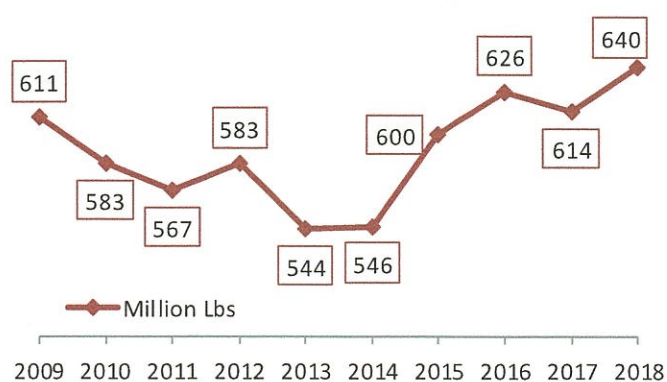
Missouri produced 640 million pounds of turkey in 2018, 26 million more than in 2017. The number of birds produced was 19.0 million. However, the value of production was down 18% to a 327 million. Missouri was the fourth largest state in terms of turkey production in 2018. U.S. turkey production increased by less than 1% in 2018 to 7.598 billion pounds while value of production decreased by 20%.

### Turkey Production and Value 2017 - 2018

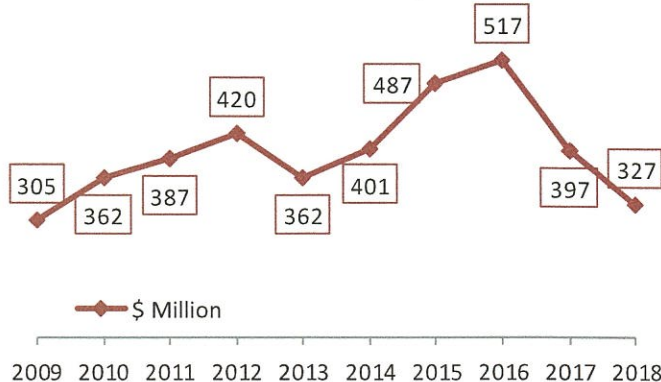
State	Pounds Produced	Percent of U.S.	Pounds Produced	Percent of U.S.	Number Produced		Value of Production	
	2017		2018		2017	2018	2017	2018
	<i>million</i>	<i>%</i>	<i>million</i>	<i>%</i>	<i>million</i>		<i>million \$</i>	
North Carolina	1,144	15.2	1,196	15.7	32.5	32.5	739	610
Minnesota	1,058	14.0	1,113	14.6	42.0	42.0	684	568
Indiana	792	10.5	768	10.1	20.0	20.0	512	392
<b>Missouri</b>	<b>614</b>	<b>8.1</b>	<b>640</b>	<b>8.4</b>	<b>18.5</b>	<b>19.0</b>	<b>397</b>	<b>327</b>
Arkansas	587	7.8	595	7.8	29.5	31.5	379	304
Iowa	485	6.4	477	6.3	12.0	11.9	313	243
Virginia	459	6.1	462	6.1	16.8	16.8	296	236
California	320	4.2	318	4.2	11.5	11.0	207	162
Ohio	281	3.7	282	3.7	6.7	6.7	181	144
Michigan	206	2.7	222	2.9	5.1	5.3	133	113
Pennsylvania	205	2.7	195	2.6	7.5	7.0	132	100
South Dakota	176	2.3	179	2.4	4.1	4.3	114	91
West Virginia	111	1.5	96	1.3	3.7	3.1	72	49
Utah	134	1.8	(D)	(D)	5.2	(D)	87	(D)
Other States	973	12.9	1,053	13.9	29.9	30.1	628	537
<b>Total</b>	<b>7,544</b>		<b>7,598</b>		<b>245.2</b>	<b>244.8</b>	<b>4,874</b>	<b>3,875</b>

(D) - Withheld to avoid disclosing data for individual operations.

### Missouri Pounds of Turkeys Produced



### Missouri Value of Turkeys Produced





The number of broilers produced in Missouri increased in 2018 by 2 million to 293 million. Pounds produced increased by 3% percent to 1.466 billion pounds and, likewise, the pound per price increased 3% from 54 cents to 56 cents. The value of production increased by 6% to \$819 million. Missouri was the 12<sup>th</sup> largest state in terms of pounds of broilers produced and value of production. It was the 8<sup>th</sup> largest state in terms of number of broilers produced. Production at the U.S. level increased by 2% to 56.791 million pounds; the value of U.S. production increased by 5% percent to \$31.746 billion.

### Broiler Production and Value 2017 - 2018

State	2017			2018			Number Produced		Value of Production	
	Pounds Produced	Rank	Percent of U.S.	Pounds Produced	Rank	Percent of U.S.	2017	2018	2017	2018
	<i>million</i>		<i>%</i>	<i>million</i>		<i>%</i>	<i>million</i>		<i>million \$</i>	
Georgia	8,044	1	14.5	8,168	1	14.4	1,363	1,361	4,376	4,566
Arkansas	6,989	2	12.6	7,316	2	12.9	1,059	1,092	3,802	4,090
North Carolina	6,563	3	11.8	6,901	3	12.2	831	874	3,570	3,858
Alabama	6,134	4	11.0	6,180	4	10.9	1,095	1,124	3,337	3,455
Mississippi	4,743	5	8.5	4,711	5	8.3	741	748	2,580	2,634
Texas	4,103	6	7.4	4,248	6	7.5	651	654	2,232	2,375
Kentucky	1,893	7	3.4	1,972	7	3.5	296	303	1,030	1,102
Delaware	1,871	8	3.4	1,924	8	3.4	260	264	1,018	1,076
South Carolina	1,799	10	3.2	1,807	9	3.2	243	238	979	1,010
Maryland	1,840	9	3.3	1,736	10	3.1	307	289	1,001	971
Virginia	1,609	11	2.9	1,673	11	2.9	277	279	875	935
<b>Missouri</b>	<b>1,426</b>	<b>12</b>	<b>2.6</b>	<b>1,466</b>	<b>12</b>	<b>2.6</b>	<b>291</b>	<b>293</b>	<b>776</b>	<b>819</b>
Oklahoma	1,370	13	2.5	1,319	13	2.3	205	197	745	737
Pennsylvania	1,037	14	1.9	1,141	14	2.0	185	200	564	638
Tennessee	909	15	1.6	940	15	1.7	172	177	494	525
Ohio	526	16	0.9	561	16	1.0	99	108	286	314
Florida	372	17	0.7	386	17	0.7	65	65	202	216
Minnesota	358	18	0.6	361	18	0.6	60	59	195	202
West Virginia	336	19	0.6	317	19	0.6	86	83	183	177
Wisconsin	226	20	0.4	229	20	0.4	54	56	123	128
<i>Total 20 States</i>	<i>52,149</i>		<i>93.8</i>	<i>53,356</i>		<i>94.0</i>	<i>8,340</i>	<i>8,464</i>	<i>28,369</i>	<i>29,826</i>
Other States	3,425		6.2	3,436		6.0	574	573	1,863	1,920
<b>Total</b>	<b>55,574</b>			<b>56,791</b>			<b>8,914</b>	<b>9,037</b>	<b>30,232</b>	<b>31,746</b>

Marketing year: Dec. 1 of previous year to Nov. 30 of year shown. Broiler production including other domestic meat-type birds.





Total chickens excluding broilers, on hand as of December 1, 2018, in Missouri increased over the previous year to 18.3 million birds, the highest total on record. The average price per bird, \$4.20, increased by ten cents. The total value of non-broiler chickens was \$77.0 million, a increase of \$15 million from 2017. Layer inventory increased by 2 million from December 1, 2017, also the highest total on record .

**Missouri Layers, Pullets, Other Chickens - Number and Value**

Year	Layers	Pullets	Other Chickens	Total Chickens	Value per Head	Total Value
	<i>1,000 Head</i>				\$	\$1,000
2013	10,423	4,556	209	15,188	4.00	60,752
2014	11,378	4,002	167	15,547	5.10	79,290
2015	11,271	4,352	179	15,802	4.90	77,430
2016	11,479	3,866	179	15,524	5.20	80,725
2017	10,509	4,527	191	15,227	4.10	62,431
2018	12,537	5,600	199	18,336	4.20	77,011

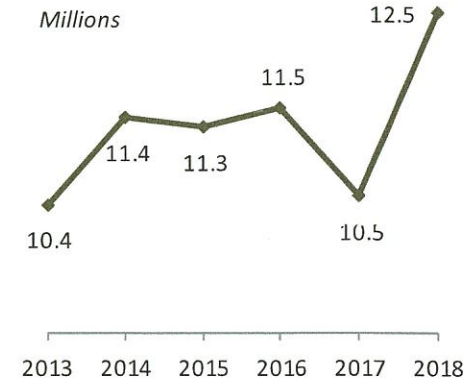
As of December 1. Excludes broilers.

**Chickens - Lost, Sold for Slaughter, Price, Value**

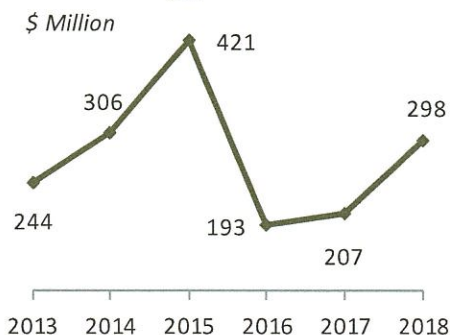
Year	Lost <sup>1</sup>	Sold for Slaughter	Pounds Sold	Value of Sales	Price per Pound
	<i>1,000 Head</i>	<i>1,000 Head</i>	<i>1,000</i>	<i>\$1,000</i>	<i>\$</i>
2013	1,225	6,221	33,096	3,442	0.10
2014	1,392	8,194	39,902	3,751	0.09
2015	1,327	8,046	37,414	3,255	0.09
2016	1,441	8,256	38,473	2,655	0.07
2017	3,210	8,704	41,866	1,633	0.04
2018	2,418	6,791	34,971	1,574	0.05

Marketing year: Dec. 1 of previous year to Nov. 30 of year shown. Excludes broilers.

<sup>1</sup> Includes rendered, died, destroyed, composted or disappeared for any reason except sold.

**December 1 Layers**


The number of eggs produced in Missouri in 2018 increased 10% from 2017 to 3.474 billion. The price per dozen eggs increased a substantial 30% to \$1.028 and the value of the eggs produced increased by 43% to \$297.9 million. Missouri ranked 11th among states in egg production and 12th in value of egg production in 2018.

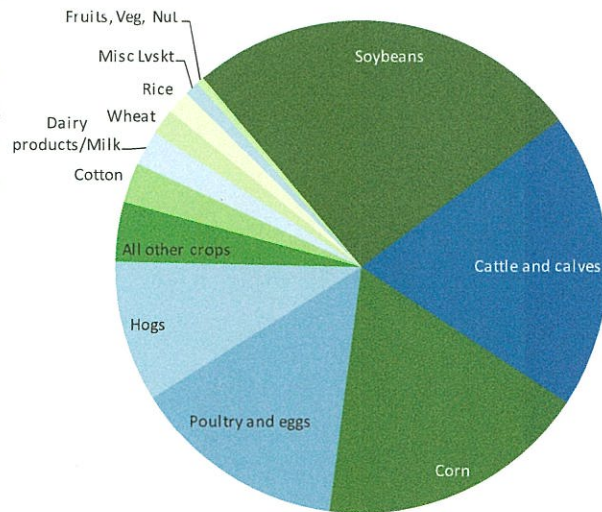
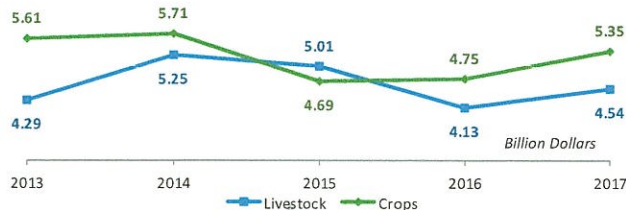
**Value of Egg Production**

**All Eggs - Production, Price, Value**

Year	Eggs Produced	Price per Dozen	Value of Production
	<i>Million</i>	<i>\$</i>	<i>\$1,000</i>
2013	2,654	1.105	244,290
2014	3,042	1.205	305,609
2015	3,057	1.654	421,446
2016	3,223	0.717	192,578
2017	3,146	0.791	207,485
2018	3,474	1.028	297,684

Marketing year: Dec. 1 of previous year to Nov. 30 of year shown.

Missouri agricultural cash receipts increased by 11% from 2016 to 2017 to \$9.9 billion in 2017. Livestock cash receipts increased by 10% and crop cash receipts were up 13%. Total cash receipts were the highest for Missouri since 2014. Among livestock commodities, cattle cash receipts increased the most (24%). For crops, wheat, cotton and vegetable/melons had increases of over 20%.

Missouri Cash Receipts



2017 Missouri Cash Receipts

Missouri Cash Receipts from Farm Marketings

Commodity	2013	2014	2015	2016	2017
	\$1,000				
<b>All commodities</b>	<b>9,900,614</b>	<b>10,965,874</b>	<b>9,701,003</b>	<b>8,877,084</b>	<b>9,882,152</b>
<b>Livestock and products</b>	<b>4,289,969</b>	<b>5,252,177</b>	<b>5,010,388</b>	<b>4,129,265</b>	<b>4,536,317</b>
Meat animals	2,515,923	3,223,488	2,991,954	2,429,515	2,831,411
Cattle and calves	1,484,549	1,979,901	2,056,816	1,548,901	1,916,610
Hogs	1,031,374	1,243,587	935,138	880,614	914,801
Dairy products, Milk	272,240	335,052	248,640	209,391	227,953
Poultry and eggs	1,398,538	1,589,854	1,672,251	1,395,740	1,381,860
Broilers	808,221	882,118	760,786	686,265	775,962
Chicken eggs	225,228	302,887	421,325	189,889	201,090
Farm chickens	3,329	3,759	3,216	2,576	1,601
Turkeys	361,760	401,090	486,924	517,010	403,207
Miscellaneous	103,268	103,783	97,543	94,619	95,094
<b>Crops</b>	<b>5,610,645</b>	<b>5,713,697</b>	<b>4,690,616</b>	<b>4,747,818</b>	<b>5,345,835</b>
Food grains	539,504	406,854	284,311	275,648	322,342
Rice	174,283	163,803	156,657	140,366	153,224
Wheat	365,222	243,051	127,654	135,282	169,118
Feed crops	1,828,616	2,248,584	2,036,947	1,777,802	1,894,395
Corn	1,574,115	2,031,366	1,843,966	1,632,226	1,761,321
Cotton	253,811	260,578	179,192	202,144	259,587
Soybeans	2,679,419	2,501,365	1,882,905	2,190,164	2,566,961
Vegetables and melons	44,369	37,525	32,962	30,828	39,027
Fruits and nuts	20,267	14,166	22,852	10,232	11,022
All other crops	244,658	244,625	251,447	261,000	252,501

USDA-ERS. Values are rounded to the nearest thousand. Sub-categories may not sum to total because not all sub-categories are reported.